The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

134

VOL. 95, NO. 14 CHICAGO, ILLINOIS 3 OCTOBER 4, 1930

CONTROVERSIES REGARDING SYPHILIS

STATISTICS AND CLINICAL IMPRESSIONS *

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Experience is often misleading and clinical impressions are often fallacious; limited and unanalyzed statistics are of no more value than faulty clinical impressions. These facts are nowhere better exemplified than in a review of the literature with reference to certain controversial statements concerning syphilis. Has the incidence of syphilis been increasing or diminishing? Is neurosyphilis more frequent since the advent of arsphenamine? Is the incubation period of neurosyphilis shorter since the introduction of the arsenicals? Are the arsphenamines neurotropic? Is optic atrophy more frequently seen following arsenical therapy and is arsphenamine contraindicated when optic atrophy has developed? These are but a few of the questions that lead to futile debate. Honest opinions of dependable clinicians are widely divergent. In an attempt to arrive at some conclusions independent of personal opinions and prejudices, numerous sources of information have been invoked to centralize data into one communication bearing on the foregoing questions. The first fact to emerge from a formidable list of articles reviewed was that, while clinical impressions are of value, they are not at all reliable. Taking one question as an example, of fifteen articles presenting conclusions based on personal impressions, eight opinions of eminent scientists were diametrically opposed to those of seven equally prominent authors. Statistical studies tended more toward uniformity and therefore only statistics or opinions with a statistical background have been utilized in this paper.

THE INCIDENCE OF SYPHILIS

Statistics on the incidence of syphilis in general are difficult to obtain. In only a few instances are venereal diseases reported except in the armies and navies. Chart 1 was compiled from the incidence of syphilis in the various armies and navies of the world plus data from the civil population in a few countries.

A reduction in the incidence of syphilis is therefore apparent in late years that must be more than apparent considering the increased interest in the subject and refinements in diagnostic procedures. It is difficult to explain the peaks and low levels in the incidence curves. Contributary to the high incidence rates in chart 1 were the high figures supplied by armies of occupation. Figures from the military forces of the same countries at home or during actual warfare were much lower. But marked fluctuations are the rule for all statistics. Thus in Denmark,[1] where legal control exists, the same phenomenon is to be noted. Sweden [2] records a recent increase. The hospital St. Louis reported an increase of 150 per cent in 1925 over 1924. Jeanselme [3] thought the large immigration of foreign workers a factor in this instance. Incidence peaks in certain countries corresponded to war dates but as often did not. During and immediately following the World War a general increase is to be noted. Unfortunately, in several of the largest units no figures are available for this period. Statistics from the forces of the United States form the basis of chart 2.

While a moderately increased morbidity is to be noted in the military forces of the United States during and immediately following the World War, the peak does not compare to those developed when the country was not at war. But statistics from military forces do not necessarily indicate the incidence rate for the civil population, and accurate data from the latter sources are difficult to obtain. Reports from the League of Nations in 1927 and 1928 indicate a decrease of syphilis in general with an increase in a few instances. Gumpert,[1] utilizing these reports for an epidemiologic forecast, thought that modern treatment would never eradicate syphilis. Almquist is quoted to the effect that marked variations are bound to occur and that the peak of the reactive epidemiologic curves are more marked, the greater the dip in the curve. Gottstein is quoted as saying that for all epidemics the law of waves must prevail. Seasonal fluctuations, cultural influences and exhaustion of susceptible material also enter into the question. In military life the influence of prophylaxis and the removal of sources of contagion by prompt treatment of infected individuals is to be considered. Jadassohn [4] reports that in fourteen countries with a total of fifty sources of information a general decrease in the incidence of syphilis in recent years is attributed to modern methods of treatment, particularly with arsphenamine.

THE MORBIDITY, INCUBATION PERIOD AND MORTALITY OF NEUROSYPHILIS

Numerous authors, usually from personal clinical impressions, assert that neurosyphilis is on the increase, and they attribute this increase to the general use of arsphenamine. Most authors dealing with statistical

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* *Chairman's address, read before the Section on Dermatology and Syphilology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.*

[1] Gumpert, Martin: Is Syphilis Dying Out? Dermat. Wchnschr. **87:** 136, 1928; abstr. Ven. Dis. Inform. **10:** 133 (March) 1929.

[2] Social work in Sweden, Bull. Protect. de l'enfance. **80:** 445 (April) 1929; abstr. Ven. Dis. Inform. **10:** 558 (Dec.) 1929.

[3] Jeanselme and Burnier: Present Recrudescence of Syphilis in the Neighborhood of Paris, Bull. Acad. de méd. **100:** 749-752 (July 3) 1928; abstr. Ven. Dis. Inform. **10:** 133 (March) 1929.

[4] Jadassohn, J.: Syphilisrückgang und Salvarsan, Klin. Wchnschr. **5:** 2248-2252 (Nov. 26) 1926.

studies from Germany,[5] Austria,[6] Hungary,[7] Czechoslovakia,[8] Switzerland,[9] France[10] and Denmark[11] are guarded as to the value of their statistics but in general report a stationary or decreased incidence of dementia paralytica covering a period from 1900 to 1922. For instance, Bumke, from admission data of all the clinics of Saxony, reported 13 per cent patients with dementia paralytica for 1915, and 14 per cent for 1918, the rate falling steadily to 8 per cent in 1922. Combined statistics from Bavarian clinics showed the proportion of patients with dementia paralytica approximately the same over a term of years. A moderate increase in the incidence of dementia paralytica is to be noted in numerous statistical reports covering the period of 1905-1916-1918 following by gradually decreasing figures up to 1922. It is suggested in more than one communication that the early increase previously noted may be illusory or real in view of the introduction of the Wassermann reaction and lumbar puncture, and the acceleration in the appearance of neurosyphilis as the result of inadequate arsphenamine therapy.

Table 1.—*Mortality from Syphilis*

	1917	*1923*
Australia	8.2	7.2
England	14.6	9.9
United States	20.0	16.7
Italy	18.0	13.2
Netherlands	8.1	5.7

In the United States[12] as a whole, cases of dementia paralytica in 1910 constituted 6.4 per cent of admissions to hospitals for mental disease and, in 1922, 7.9 per cent, according to the bureau of the census. The increase noted in 1922 over 1910 is offset as noted in the census report by virtue of the fact that the 1910 figures from some states were so low that the data must be considered incomplete. Thus, eleven states reported less than 2 per cent, and four states did not report any admissions for dementia paralytica. It is interesting to note that in New York State admissions for dementia paralytica rose from 7.82 per hundred thousand of the general population in 1922 to 8.02 in 1928, and during the same period the mortality per thousand deaths fell from 5.28 to 3.89. In Massachusetts the rate fell from 8.31 in 1908 to 6.41 in 1928 and the death rate over the same period from 5.87 per hundred thousand of population to 4.72. In the United States[13] as a whole, mortality for tabes and dementia paralytica per hundred thousand fell gradually from 8.2 in 1921 to 6.4 in 1927. Over the period 1922 to 1928 in England[14] and Wales the death rate per hundred thousand for dementia paralytica fell from 4.44 to 3.57. *Health News*[15] supplies the figures on the mortality from syphilis, including tabes and dementia paralytica, given in table 1. The statistics on the incidence and mortality from tabes show the same trend as those on dementia paralytica.

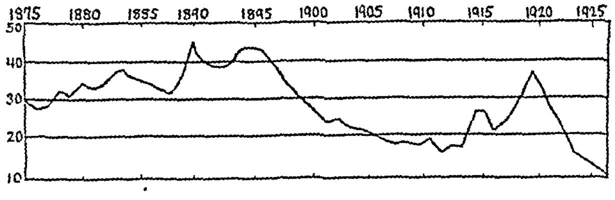

Chart 1.—Incidence of syphilis per thousand available figures in the combined armies and navies of the world from 1875 to 1926. The greater portion of the statistics were obtained from Jadassohn's Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1927.

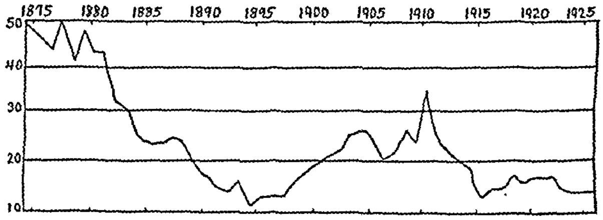

Chart 2.—Incidence of syphilis in the United States Army and Navy from 1875 to 1926.

It may be stated, then, that from the available data on dementia paralytica and tabes a slight decrease or an almost stationary rate is obtained covering the period since the advent of arsphenamine, and that during the same period the mortality from these sources has definitely decreased.

Statistical studies as to the frequency of acute cerebrospinal syphilis before and since arsphenamine are not numerous but are in general agreement. Pette,[16] from a survey of the material at Nonne's clinic, concludes that early neurosyphilis unquestionably became more frequent after the introduction of arsphenamine. In about 50 per cent of cases, cerebrospinal syphilis appeared during the first year, most frequently from two to three months after infection. However, it is to be noted that the cases were insufficiently treated; in only three cases did neurosyphilis of this type develop in spite of treatment. Lauter[17] analyzed neurosyphilis at Strümpell's clinic from 1900 to 1922, including only cases with clinical signs, with the results shown in table 2.

Table 2.—*Occurrence of Neurosyphilis*

	Interval Between Infection and Appearance of Clinical Symptoms																	
	½ yr.	1	2	3	4	5	6	7	8	9	10	11-15	16-20	21-30	31-40	Total		
Treatment	Number of Cases																Early*	Late
None	4	3	4	2	2	2	4	2	1	3	3	3	2	8	1	44	7	37
Mercury	10	8	7	5	7	8	12	5	4	5	3	14	9	4	–	101	18	83
Arsphenamine and mercury	18	19	5	2	3	3	3	–	1	–	–	—	–	–	–	55	42	13
Arsphenamine alone	12	3	–	–	2	–	1	1	–	–	–	—	–	–	–	19	15	4

* During first year.

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[5] Koch, R.: Hat [illegible] seit Einführung der Salvarsanbehandlung [illegible] Wchnschr. **25:** 3-6, 1923-1924. Bonhoeffe[illegible] aus der psychiatrischen Krankenbew[illegible] Arch. f. Psychiat. **60:** 721-728, 1919. [illegible] der staedtischen Nervenheilanstalten [illegible] Psychiat.-neurol. Wchnschr. **25:** 281, 1[illegible] Psychiatrie, Arch. f. Psychiat. **76:** 58-67, 1925.

[6] Pilcz, A.: Frequency of Dementia Paralytica in Vienna Insane, Wien. klin. Wchnschr. **35:** 542-544 (June 15) 1922. Herschmann, H.: Ueber die Paralysefrequenz in Wien 1923-1927, nebst einigen Bemerkungen über die Wirksamkeit der Paralysebehandlung durch Impfmalaria, Wien. med. Wchnschr. **78:** 915-1018 (July 7 and 28) 1928.

[7] Rusiczka, A.: Ueber einige statistische Probleme der Paralyse, Psychiat.-neurol. Wchnschr. **31:** 222-226, 1929.

[8] Procházka, H.: Statistisches zür progressiven Paralyse, Rev. v. Neurol. u. Psychiat. **24:** 179; abstr. Zentralbl. f. d. ges. Neurol. u. Psychiat. **48:** 461, 1927.

[9] Maier, H. W.: Ueber die Häufigkeit [illegible] den Irrenanstalten der Schweiz von 1897-19[illegible] u. Psychiat. **95:** 271, 1921. Itten, H. W.: [illegible] Krankheitsdauer und *Heilerfolg der wegen* [illegible] Irrenanstalten der Schweiz in den Jahren [illegible] genommenen, Schweiz. med. Wchnschr. **56:** [illegible]

[10] Benon, R.: Is Dementia Paralytica Decreasing? Bull. Acad. de méd. **91:** 261-263 (Feb. 26) 1924.

[11] Smith, J. C.: Notes on the Appearance of Dementia Paralytica and the Relation Between Its Frequency and the Antisyphilitic Treatment, Acta. psychiat. et neurol. **1:** 486, 1926.

[12] Patients in Hospitals for Mental Diseases, Washington, D. C., Government Printing Office, 1926, p. 61.

[13] U. S. Bureau of Census Reports, 1920.

[14] Registrar-General's Statistical Review of England and Wales.

[15] Health News, Albany, N. Y. **5:** 128, 1928.

[16] Pette, H.: Early Neurosyphilis, Med. Klinik **19:** 1147-1149 (Aug. 19-26) 1923.

[17] Lauter, F. W.: Die Beeinflussung der Inkubationszeit von Paralyse, Tabes, und Lues cerebri durch die Behandlung der frischen Lues und Faktoren, Deutsche Ztschr. f. Nervenh. **82:** 292-313, 1924.

He concluded that, since the introduction of arsphenamine, early involvement of the central nervous system had become more frequent. Marburg[18] reported concerning the relationship between treatment and incubation time in a group of patients with dementia paralytica, those with tabes and those with early cerebrospinal syphilis and showed a shortening of the incubation period in the arsenical treated group. Mattauschek,[19] in 1924, reported an increase in cerebrospinal syphilis and a stationary curve for dementia paralytica. Hyder[20] found the average incubation time for neurosyphilis among a group infected prior to the introduction of arsphenamine to average fifteen years, and among a group infected during the arsphenamine era to be seven years. In respect to the apparent increase of cerebrospinal syphilis and the rather definite shortening of the incubation time of neurosyphilis, most communications based on clinical impressions are in agreement with those based on statistics, but the interpretation of these phenomena are widely divergent. A large number of authors unqualifiedly condemn arsphenamine, but in statistical studies in which the incidence and incubation periods of neurosyphilis were compared following treatment with mercury alone, mercury combined with arsphenamine, arsphenamine alone, or no treatment, have demonstrated that insufficient treatment of any kind in the early stages of the infection predisposes to involvement of the central nervous system.

Stokes and DesBrisay[21] found no marked difference in the absolute incidence of neurosyphilis among cases untreated, mouth treated and inadequately treated by modern methods, but thought that neurosyphilis had a much larger proportionate incidence in the last group. A group of authors too numerous to mention show that with intensive and persistent treatment, regardless of its type in early syphilis, the tendency toward neurosyphilis is diminished. Moore,[22] in a study of eighty-one cases of neurorecurrence, concluded that the condition is practically confined to inadequately treated patients and showed that increase in the amount of treatment, including arsphenamine, reduces the incidence of neurosyphilis. These apparent facts are given added weight when compared with the experimental production of various types of disease by Pearce and Brown[23] using subtherapeutic injections of arsphenamine. Considering the entirely inadequate treatment that the majority of patients with early syphilis receive, and the demonstrated trend of such cases, it is not surprising that there is an increase in the number of neurorecurrences, and that the average incubation period of neurosyphilis has been shortened.

ARSENIC IN OPTIC ATROPHY

An article by Abadie[24] on the evils of arsenic and bismuth in ocular syphilis is one of several articles by prominent writers condemning arsenic in syphilitic disease affecting the eye. The author states that chorioretinitis and optic atrophy have become infinitely more frequent since the introduction of arsphenamine. He states that not only are arsenic and bismuth compounds absolutely powerless to modify the evolution toward blindness but they often precipitate it. He reports shortening of the incubation period, and recommends intravenous injections of mercuric cyanide as the best form of treatment. Arlt[25] of Uhthoff's clinic reports a decrease of optic atrophy since the introduction of arsphenamine and naturally favors its use. All of the fifty-three cases of optic atrophy at this clinic had been inadequately treated early in the disease, and later on they had received mercury almost exclusively. Igersheimer[26] reports no unusual hazard to either the healthy or the diseased eye, but at the same time thinks that the drug is of no particular service in optic atrophy. Zimmerman[27] states that the only true toxic arsphenamine reaction involving the normal eye is a conjunctival hyperemia. There are no clinical or experimental data indicating that arsphenamine unfavorably affects the normal optic nerves or the retina. However, serious consequences may follow the exhibition of arsphenamine in extensively diseased eyes in the form of a Jarisch-Herxheimer reaction.

The aggravation of existing pathologic conditions by arsphenamine can in the majority of cases, as has been repeatedly demonstrated, be avoided by the preliminary use of mercury or bismuth and the iodides. Fehr, quoted by Zimmerman, reported a study of 340 cases treated with a single injection immediately following the introduction of arsphenamine. Of these, thirty-two developed evidence of ocular recurrence, eleven of which were optic neuritis. Moulton[28] reported a case of methyl alcohol blindness cured by the administration of small doses of neoarsphenamine. Stock[29] obtained good results by treating retrobulbar optic neuritis from various causes with arsphenamine. Suker[30] treated four cases of methyl alcohol blindness with arsphenamine and all the patients recovered. It would seem, then, that a deleterious effect on normal eyes or those affected by nonsyphilitic disease has not been demonstrated. Neymann and Singleton,[31] in reporting fifty cases of neurosyphilis, recorded the administration of forty, thirty-two and twenty-four injections of tryparsamide to three patients with optic atrophy, resulting in stationary vision and serologic improvement in two. Transitory amblyopia was noted in 10 per cent of the entire series of cases, with a permanent reduction of vision in three cases. In 152 cases, Stokes and Wilhelm[32] reported 8 per cent visual disturbance with tryparsamide, 5.4 per cent with objective evidence of damage, *and in one case a reduction to tubular vision.* Lillie[33] and O Leary with Becker[34] reported similar results, pointing out that syphilis would in part account for these reactions.

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[18] Marburg, O.: Ueber die Beziehungen der Frühbehandlung der Syphilis zum Ausbruch der spezifischen Nervenkrankheiten, Wien. med. Wchnschr. **73:** 616-619, 1923.

[19] Mattauschek, E.: Echte Neurorezidive und deren Beziehung zur Metalues, Wien. klin. Wchnschr. **37:** 1019 (Oct. 2) 1924.

[20] Hyder, H. P.: Relations of Salvarsan to Neurosyphilis, J. Nerv. & Ment. Dis. **60:** 479, 1925.

[21] Stokes, J. H., and DesBrisay, H. A.: Observations on the Course of 413 Cases of Untreated or Inadequately Treated Syphilis, Am. J. Syph. **8:** 558-568 (July) 1924.

[22] Moore, J. E.: Relation of Neurorecurrences to Late Syphilis, Arch. Neurol. & Psychiat. **21:** 117-136 (Jan.) 1929.

[23] Brown, W. H., and Pearce, Louise: Resistance (or Immunity) Developed by the Reaction of Syphilitic Infection, Arch. Dermat. & Syph. **2:** 675-678 (Dec.) 1920.

[24] Abadie, C.: Des méfaits des composés arsénicaux et bismuthiques en thérapeutique oculaire, Bull. Soc. franç. de dermat. et syph. **35:** 319-323 (April) 1928.

[25] Arlt, E.: Behandelte und unbehandelte Fälle von tabischer Sehnervenatrophie, Ztschr. f. ärztl. Fortbild. **19:** 367-370, 1922.

[26] Igersheimer, J.: Syphilis und Auge, ed. 2, Berlin, 1928, pp. 105 and 346.

[27] Zimmerman, E. L.: Rôle of the Arsphenamines in the Production of Ocular Lesions, Ven. Dis. Inform. **9:** 479-493 (Nov. 20) 1928.

[28] Moulton, Herbert: Treatment of Methyl Alcohol Blindness with Especial Reference to Use of Arsphenamin and Neo-Arsphenamin, Tr. Sect. Ophth., A. M. A., 1923, pp. 353-361.

[29] Stock: Ueber Neuritis retrobulbaris: (Proceedings of the Soc. of Ophthalmologists of Wuerttemberg), Klin. Monatsbl. f. Augenh. **71:** 219, 1923.

[30] Suker, G. F.: Neosalvarsan for Toxic Amblyopia, Am. J. Ophth. **5:** 377-379, 1922.

[31] Neymann, C. A., and Singleton, D. E.: Therapeutic Results with Tryparsamide in the Treatment of Neurosyphilis, J. Nerv. & Ment. Dis. **64:** 144-150 (Aug.) 1926.

[32] Stokes, J. H., and Wilhelm, L. F. X.: Tryparsamide in Treatment of Neurosyphilis: Study Based on Observations of 152 Patients for Eighteen Months, Arch. Dermat. & Syph. **11:** 579-610 (May) 1925.

[33] Lillie, R. D.: Tryparsamide Treatment of Syphilis of the Central Nervous System, J. A. M. A. **83:** 809-813 (Sept. 13) 1924.

[34] O'Leary, P. A., and Becker, S. W.: Further Observations on the Treatment of Neurosyphilis with Tryparsamide, M. J. & Rec. **123:** 305-308 (March 5) 1926.

Apparently in this arsenical a hazard exists which is not paralleled by any other salt of arsenic now used in the treatment of syphilis. In the clinic of the University of Pittsburgh from 1923 to 1929 there were received approximately 50,000 cases, and of these 1,917 cases presented ocular syphilis of different types. Twenty were found with optic atrophy. The average interval between infection and examination, where available, was eighteen years. All cases were treated with mercury, iodides and arsphenamine. The average amount of treatment was one eight weeks' course and in only half of the cases are complete notes on the condition of the eyes available after one year's time. Of these, one showed marked improvement serologically and in the perimetric field. In four no change was noted, and in the remaining cases gradual deterioration developed. No patient was given arsphenamine for the first treatment, either mercury or bismuth with iodides being used to reduce the hazard of Herxheimer reaction.

If these figures demonstrate anything other than that we were unable to control our patients, it is that carefully administered routine treatment including arsphenamine frequently controlled by examination of the eyes is not contraindicated by the presence of an optic atrophy. Lederer[35] reviewed the work of Leber, Wecker, Uhthoff, Hippel, Hirschberg, Igersheimer and Behr, and reported personally on the treatment of two cases of optic atrophy which he treated with foreign protein, sodium nucleinate, arsphenamine, mercury and malaria over a period of from three to four years with improvement in vision and fields in three eyes and failure in two. Stargardt,[36] from a study of optic atrophy in tabes and dementia paralytica, concluded that atrophy was secondary to a round cell infiltration of the intracranial portion of the optic nerve and argues the presence of spirochetes as the direct cause in contradistinction to the theory of toxic origin.

From the foregoing and in view of the irregular and incalculable course of the condition, it would be unwise to speak of successful treatment unless arrest or improvement holds for at least two years. Treatment, to be effective, must be early and intensive. As long as inflammation and exudation are associated with the process, one may expect arrest or improvement, but with established atrophic degeneration one must face the fact that scar cannot be replaced by normally functioning tissue. Whether optic atrophy is purely toxic in origin and essentially atrophic in character or due to the presence of the spirochete and inflammatory exudate is of relative unimportance. The question in point is whether or not arsphenamine or any other arsenical used in the therapy of syphilis is prone to precipitate or aggravate optic atrophy. Barring the Herxheimer type of reaction, such possibilities seem rather remote in view of the foregoing, but the question arises as to whether the rapid clearing of exudate may lead to more scarring than would result from the use of mercury, bismuth and the iodides. Should such be the case, acute eye lesions seen early in the course of syphilis and treated with arsphenamine should show this tendency. Baruch[37] reviewed 10,000 cases with an incidence of 3.67 per cent of optic neuritis, all treated intensively with arsphenamine to complete cure in all, and with a secondary atrophy in only two cases. It would seem that while tryparsamide must be used cautiously with reference to pathologic conditions affecting the eyes, the trivalent arsenicals carefully used with due caution are at least not contraindicated in the presence of an optic nerve involvement.

IS ARSENIC NEUROTROPIC?

Perusal of the literature reveals the misuse of the word neurotropic. A great many perfectly clean-cut cases of Jarisch-Herxheimer reactions are ascribed to neurotropism on the part of arsenic. Neurorecurrences are also credited to the neurotropic effect of arsenic. Practically every neurologic accident has from time to time been considered due to neurotropism of arsenic. Dorland[38] defines neurotropism as "having a chemical affinity for nervous tissue." Therefore, if the term is to be used correctly, it must be limited to conditions in which some particular tissue or organ binds more arsenic than others. Thus, if the peripheral neuritis occasionally seen as a complication of arsenical medication could be shown to be associated with a selective localization of arsenic, an example of neurotropism would be established. Arsphenamine seems to have no selective affinity for the nervous system; in fact, one of the difficulties is to get the drug in contact with the diseased structures in syphilitic involvement of the central nervous system. Ullmann[39] by animal experimentation found only a trace of arsenic in three brains, and none at all in two, in contradistinction to the arsenical content of other tissues, following intramuscular injections of the drug. Similar results are reported by Bornstein[40] and by Morel with Mouriquant.[41] Voegtlin and Smith,[42] using single large doses of arsphenamine, found 1.16 mg. per gram of fresh brain; in the cerebrospinal fluid, 7.21 mg. (normal fluid content is from 0.5 to 1.55) while there was in the spleen 16.85, bile 195.54, liver 16.17, stomach and intestines 10.34 and blood 5.25 mg. per gram of fresh material. Engelman[43] demonstrated that arsenical storage in the brain which, following administration paralleling ordinary therapeutic procedures, revealed at most only a trace, could be increased only by frequent administration of large doses over a period of several weeks. And still small doses of arsenicals are said to be frequently neurotropic. The point to be made is that all sorts of accidents may complicate arsenical medication of syphilis, but proof does not exist that they are due to neurotropism on the part of arsenic. If it is considered that the small amount of arsenic deposited in the nervous system produces symptoms referable to these tissues, neurotoxic would seem to be the better term.

This paper, dealing with generalities, is perhaps suggestive, but I prefer to think not at all conclusive. It is hoped that it may serve to stimulate research that will be conclusive.

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41. Morel, A., and Mouriquant, G.: Recherches expérimentales sur le neurotropisme du salvarsan, Lyon méd. **120**: 315-319, 1913.

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RESULTS OF VARIOUS OPERATIONS FOR PROLAPSE OF THE UTERUS *

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Of the various operations for prolapse of the uterus, those most used probably are the Watkins-Wertheim, the Mayo vaginal hysterectomy, the Kocher fixation, the modified Gilliam, and various other types of intraperitoneal shortening of the round ligaments combined with vaginal plastic operations. The technic of each has undergone various modifications and is described in detail in the literature. The value of any one of these procedures as a corrective operation is determined largely by the results obtained from its use, by the ability of the surgeon to execute the technic correctly and by its application to the properly selected case.

Masson[1] has stated that the choice of operation depends on several factors. Chiefly these are: the age of the patient, her marital state, the risk of an abdominal or vaginal operation, and the degree of prolapse with its accompanying symptoms. The practice of using an operation as a routine is to be condemned, since it would be obviously too radical in some cases and certainly inadequate in others.

Cystocele and rectocele, which are the accompanying conditions of prolapse, are usually the factors which induce the patient to seek relief. The prolapse of the uterus itself may be symptomless. The associated cystocele usually is in direct proportion to the extent of prolapse. Such conditions also occur in the nulliparous woman and are usually due to congenital or developmental defects in the supporting ligaments, the muscles, and the fascia of the pelvic diaphragm. As the uterus becomes retroverted and descends, in women who have had children the bladder is carried downward, because the uteropubic fascia, which previously supported the bladder in its normal position, is dragged downward on the cervix.

All writers agree that injury produced at the time of childbirth is the most common cause of prolapse and its accompanying disorders. Failure to repair adequately the soft parts at the time of labor or soon thereafter is of course an incidental and related cause of the condition. The atrophy of the pelvic viscera and the loss of tonus of the pelvic muscles after menopause account for the increase in number of cases of prolapse after this period. Prolapse in the nulliparous woman usually occurs after the menopause because of this atrophy of the soft parts in addition to congenital defects. Any procedure, therefore, which is used for the correction of prolapse must be directed to the correction of cystocele or must be supplemented by anterior colporrhaphy, and the pelvic floor must be reconstructed in all cases if cure of the prolapse is to be expected.

The patients are always divided into two main groups: those who are in the child-bearing period, and those who are past the menopause. Practically all gynecologists are in accord regarding the treatment of the first group, which consists in repair of the cervix, of the anterior and posterior vaginal walls and of the perineum, combined with some type of intraperitoneal shortening of the round ligaments. The treatment of the second group is the subject of a great deal of discussion, and many operations have been devised and modified. In our estimation comparatively few types of operations are necessary for the adequate treatment of these cases. However, an occasional case may present certain complicating features which may be better cared for by a method not mentioned here. For instance, it may be best to use such an operation as subtotal or total abdominal hysterectomy followed by implantation of the cervix or vaginal vault in the abdominal wall, or the Le Fort operation in which the vagina is obliterated. Only a small number of the total group will require such procedures for prolapse, and for this reason consideration of them is omitted here.

There is no accepted standard for the classification of various degrees of prolapse. Certain gynecologists have designated the extent of the prolapse as first, second and third degrees, but this classification has not been generally accepted. It would seem that since in recent years it has become the custom to grade lesions on a basis of 1 (slight) to 4 (extreme), it would be logical to grade uterine prolapse and its accompanying disorders on the same basis. A division of the cases according to this method contributes to a better understanding of the extent of the lesion and aids one in selecting the type of treatment which should be applied. All cases of retroversion and only slight descensus of the uterus should be classified in group 1; cases in which the cervix is presenting at the introitus (not cervical elongation), in group 2; cases in which the cervix projects partly from the introitus, in group 3, and cases in which there is complete prolapse of the cervix and uterus, in group 4. The extent of cystocele and rectocele, and of retroversion, could also be graded on a basis of 1 to 4.

The results submitted here are all graded according to this proposed classification. The patients were treated, by various members of the surgical staff of the Mayo Clinic, by the Mayo vaginal hysterectomy, the Kocher type of abdominal fixation, the Watkins-Wertheim interposition operation, and the modified Gilliam technic or various other methods of intraperitoneal shortening of the round ligaments.

The data were obtained from questionnaires sent to 819 patients, 83.5 per cent of 980 such patients treated at the Mayo Clinic from 1920 to 1928 inclusive. Therefore, unless a patient was treated two years or more before the time when the questionnaire was sent, her case is not included. The average age of the patients who underwent vaginal hysterectomy was 54 years; the Kocher operation, 52 years; the Watkins-Wertheim operation, 49 years; the modified Gilliam operation, 33 years, and intraperitoneal shortening, 33 years. The average age of patients of the entire group was 51 years. This average is practically identical with the figures given in the literature. Analysis of the figures by half decades of life reveals that the largest number of patients who are past the menopause and who seek relief are between the ages of 45 and 60 years and that the greatest number who are in the child-bearing period are between the ages of 25 and 35 years. The incidence of prolapse, as regards the number of children born, is important, as is shown in table 1. The largest number of children were borne by those patients who were treated by the method of vaginal hysterectomy, and the largest number (seventeen) of nulliparous women of the entire series were treated by this method.

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* From the Division of Surgery and the Division of Medicine, the Mayo Clinic.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[1] Masson, J. C.: Surgical Treatment of Uterine Prolapse, Minnesota Med. **12**: 67-70 (Feb.) 1929.

ASSOCIATED OPERATIONS

The number and proportion of operations for conditions associated with uterine prolapse are shown in table 2. It will be noted that perineorrhaphy was performed in a large proportion of cases. The largest number of vaginal plastic procedures occurred in association with the modified Gilliam operation and the other types of intraperitoneal shortening. Further reference to these operations will be made in the consideration of each operation.

Table 1.—*Record of Child Bearing of Women who Underwent Operations for Prolapse of the Uterus, 1920 to 1928*

	Operations				
Children Born	Vaginal Hysterectomy	Kocher	Watkins-Wertheim	Modified Gilliam	Intraperitoneal Shortening of Round Ligaments
None	17	4	..	10	5
1	59	18	5	11	5
2	95	15	11	21	12
3	106	11	12	15	7
4	83	10	5	6	3
5	57	5	14	4	1
6	41	6	4	2	2
7	33	4	2	1	..
8	27	1	1	..	..
9	22	..	..	..	..
10	10	..	3	..	..
11	11	1	1	..	..
12	6	..	1	..	..
13	5	..	..	..	..
14	1	..	..	..	..
Total	576	78	59	70	36
Average*	4.41	3.22	4.27	[illegible]	2.74

* Average number of children for each woman, nulliparas excluded from calculation.

Table 2.—*Surgical Procedures Carried Out in Association with Operations for Prolapse of the Uterus, 1920 to 1928*

	Vaginal Hysterectomy, 576 Cases		Kocher, 78 Cases		Watkins-Wertheim, 59 Cases		Modified Gilliam, 70 Cases		Intraperitoneal Shortening of Round Ligaments, 36 Cases	
Associated Procedures	Operations	Per Cent	Operations	Per Cent	Operations	Per Cent	Operations	Per Cent	Operations	Per Cent
Perineorrhaphy	547	94.96	29	37.17	59	100.00	42	60.00	18	50.00
Cervical amputation	..	.....	11	14.10	13	22.03	19	27.14	17	47.22
Cautery to cervix	..	.....	5	6.41	1	1.69	10	14.28	1	2.77
Dilation and curettage	6	1.04	5	6.41	1	1.69	15	21.42	6	16.66
Myomectomy	..	.....	11	14.10	..	.....	5	7.14	3	8.33
Trachelorrhaphy	..	.....	..	.....	..	.....	8	11.42	4	11.11
Anterior colporrhaphy	..	.....	5	6.41	..	.....	10	14.28	5	13.88
Removal of cysts from ovary	2	0.34	1	1.28	..	.....	4	5.71	2	5.55
Bilateral salpingo-oophorectomy	3	0.52	4	5.12	..	.....	..	.....	2	5.55
Bilateral oophorectomy with single salpingectomy	1	0.17	1	1.28	..	.....	1	1.42	2	5.55
Single oophorectomy with bilateral salpingectomy	1	0.17	2	2.56	..	.....	..	.....	1	2.77
Single oophorectomy [illegible]	10	1.73	8	10.25	..	.....	4	5.71	1	2.77
[illegible]	2	0.34	..	.....	..	.....	..	.....	..	.....
[illegible]	1	0.17	2	2.56	..	.....	1	1.42	4	11.11
Bilateral salpingectomy	2	0.34	2	2.56	..	.....	..	.....	..	.....
Single salpingectomy	3	0.52	..	.....	1	1.69	1	1.42	3	8.33

MAYO VAGINAL HYSTERECTOMY WITH AND WITHOUT PERINEORRHAPHY

Of a total of 696 patients who underwent vaginal hysterectomy, 576 (82.75 per cent) were heard from. The patients who were entirely free from symptoms were classified as having obtained good results, and those who were only partially relieved, as having obtained fair results. In the latter group the patients all stated that their condition had been tremendously improved by the operation but that they continued to have occasional attacks of cystitis. Good results occurred in 76.74 per cent, fair results in 20.48 per cent: thus satisfactory results were obtained in 97.22 per cent (table 3). In chart 1 are represented graphically the degrees of prolapse on a basis of 1 to 4, by half decades of life ranging from ages 25 to 75 years; the results are expressed as averages in percentage for each half decade of life. There were sixteen failures or poor results in 2.78 per cent of the patients. All of these had prolapse and cystocele graded 3 or 4 preoperatively, and complained of recurring prolapse of the bladder within a few months after the operation. Of the 696 patients, 14 died, a hospital mortality of 2.01 per cent (table 3). Studied by half decades, the largest number of cases are seen to have occurred between the ages of 55 and 60 years, with 93 per cent occurring at or beyond the menopause. The percentage of satisfactory results is practically the same for each half decade; it ranges between 94.02 and 100 per cent.

Table 3.—*Mortality in Hospital and End-Results of Operation for Prolapse of the Uterus, 1920 to 1928*

	Entire Series				Questionnaires Answered				
		Mortality in Hospital					End-Results		
Type of Operation	Cases	Cases	Per Cent	Average Age, Years	Cases	Per Cent	Good	Fair	Poor
Vaginal hysterectomy	696	14	2.01	54.05	576	82.75	76.74	20.48	2.78
Kocher	92	..	....	52.00	78	84.78	66.67	28.20	5.12
Watkins Wertheim	71	..	....	49.11	59	83.09	69.49	27.12	3.39
Modified Gilliam	77	1	1.29	38.07	70	90.90	60.00	28.57	11.43
Intraperitoneal shortening of round ligaments	44	1	2.27	33.61	36	81.81	63.89	27.78	8.33
Total	980	16	1.62	51.16	819	83.57	73.26	22.71	4.03

Perineorrhaphy was performed in all cases except when the perineum had been repaired previously elsewhere and secondary repair was not necessary (chart 1).

KOCHER OPERATION

Of a total of ninety-two patients treated by the Kocher fixation method, seventy-eight (84.78 per cent) were traced (chart 2). Good results occurred in 66.67 and fair results in 28.20 per cent: thus satisfactory results occurred in 94.87 per cent. There were poor results in four cases (5.12 per cent). Three of the patients had undergone previous vaginal plastic operations combined with internal shortening of the round ligaments for cystocele and rectocele graded 2 and 3, with prolapse graded 1. Symptoms of prolapse, with irritability of the bladder, recurred within a year in three cases. One patient was completely relieved for one year but recurrence developed following repair of postoperative abdominal hernia. The probability of cure of each of the four patients who had recurrence was doubtful at the time of operation, because they were all obese, the fascia of the abdominal walls was very thin and the rectus muscles were separated. There were no deaths in the hospital. The average age of the patients was 52 years; the age of the youngest was 30 and of the oldest, 70 years (chart 2).

WATKINS-WERTHEIM OPERATION

Seventy-one patients were treated by the Watkins-Wertheim interposition operation. Replies to inquiries (chart 3) were received from fifty-nine (83.09 per cent). The average age of the patients in this group was 49 years. Fifty per cent of the patients were between the ages of 40 and 55 years, with the largest number between 45 and 50 years. There were no deaths in the hospital. Good results occurred in 69.49 per cent and fair results in 27.12 per cent; thus satisfactory results occurred in 96.61 per cent. The majority of the patients had prolapse graded 2 and 3, with the greatest number graded 2. The degree of cystocele averaged between grades 2 and 3. The results for cystocele and prolapse correspond. Poor results were recorded in two cases (3.39 per cent). Each of these patients was aged 54 years. One patient had borne six children and the other, two. Both had cystocele and prolapse graded 2. Recurrence of the prolapse and vesical trouble developed within a few weeks after operation in one case and seven months after operation in the other.

MODIFIED GILLIAM OPERATION

Seventy-seven patients were treated in accordance with the modified Gilliam technic of internal shortening of the round ligaments. Replies (chart 4) were received from seventy (90.9 per cent). The operation was combined with perineorrhaphy in forty-two of the seventy cases (60 per cent), with cervical amputation of the Sturmdorf type in nineteen (27.14 per cent), with cauterization of the cervix in ten (14.28 per cent), with dilation and curettage in fifteen (21.42 per cent), and with anterior colporrhaphy in ten (14.28 per cent). Retroversion was associated with the main condition in practically all cases, and the degree of retroversion usually corresponded with the degree of prolapse. Good results occurred in 60 per cent, and fair results in 28.57 per cent; thus satisfactory results occurred in 88.57 per cent. There were poor results in eight cases (11.43 per cent). Fifty-six per cent of the patients in this group were between the ages of 25 and 35 years. Two patients were aged more than 55 years and cure resulted in each instance. The average age of the patients was 33 years. There was one death in the seventy-seven cases, a mortality of 1.29 per cent. In the cases in which failure resulted, two patients had been pregnant since operation and two had been pregnant twice. The pregnancies were all followed by recurrence of prolapse and cystocele, associated with a bearing-down sensation, frequency, and burning on urination. One patient had recurrence of the prolapse and a bearing-down sensation five years after operation. In three cases recurrence developed within three months after operation.

INTRAPERITONEAL SHORTENING OF THE ROUND LIGAMENTS FOR PROLAPSE

Forty-four patients were treated by a method of intraperitoneal shortening of the round ligaments other than that known as the modified Gilliam type of operation, combined with a vaginal plastic operation. Of this number, replies (chart 5) were received from thirty-six (81.81 per cent). There was one death, a mortality of 2.27 per cent in the forty-four cases. The average age was 33 years. Good results were obtained in 63.89 per cent and fair results in 27.78 per cent; thus, satisfactory results were obtained in 91.67 per cent. The greatest number of patients had prolapse graded 2, but some patients had prolapse graded 3. Five per cent of the patients were younger than 25 years; 22 per cent were between the ages of 25 and 30 years, 28 per cent between the ages of 30 and 35 years, 32 per cent between the ages of 35 and 40 years, and 11 per cent between the ages of 40 and 45 years. No patient was more than 45 years of age. In eighteen (50 per cent) of the thirty-six cases the main operation was combined with perineorrhaphy; in seventeen (47.22 per cent) with amputation of the cervix of the Sturmdorf type; in four (11.11 per cent) with repair of the cervix, and in five (13.88 per cent) with repair of cystocele. There were poor results in three cases (8.33 per cent). In one case a Baldy-Webster type of internal shortening of the round ligaments was performed together with a Sturmdorf type of amputation of the cervix and perineorrhaphy. This patient was not benefited by the operation. In one case a Baldy-Webster type of internal shortening of the round ligaments was performed, combined with trachelorrhaphy and perineorrhaphy, Sturmdorf amputation of the cervix and right salpingectomy. This patient was well for three years when pregnancy occurred, which was followed by complete prolapse. The third patient, a nullipara, was aged 31 years, with prolapse graded 1. Symptoms recurred within a few months.

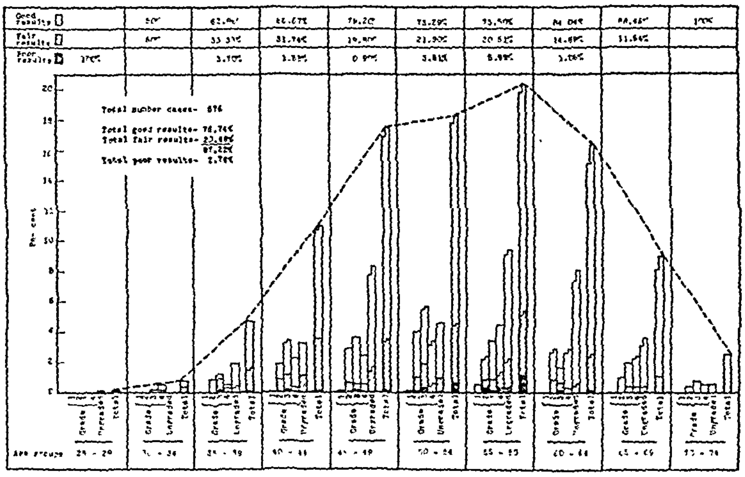

Chart 1.—Mayo vaginal hysterectomy with and without (J) perineorrhaphy.

COMMENT

In this series of 980 patients surgically treated for uterine prolapse and associated conditions, as has been said, answers were received to questionnaires from 819 (83.57 per cent). One hundred and six (12.94 per cent) of the 819 cases occurred in women in the child-bearing period and 713 (87 per cent) occurred beyond the menopause. It is apparent, therefore, that, if these patients do not have sufficient symptoms from prolapse or accompanying cystocele to induce them to seek relief before the menopause, relaxation of the pelvic support and atrophy of the tissues increases their discomfort considerably. Acquired prolapse itself may be symptomless, since it is not uncommon to examine patients with prolapse of the uterus graded 2 to 3 who have no complaints referable to the prolapse. The most distressing symptoms usually are due to the cystocele, which is usually associated with the prolapse. The greater the extent of relaxation of the perineum, the greater will be the extent of prolapse, because the perineum tends to support the uterus within the vagina.

The milder grades of cystocele and rectocele are seen in the child-bearing period associated with a low grade of prolapse and retroversion.

The choice of operation to secure the best results as shown in this study depends on the age, the marital state, and the grade of cystocele and prolapse, and must be one that will relieve the cystocele. If patients have passed the menopause this is satisfactorily accomplished by removing the uterus vaginally, and utilizing the round and broad ligaments to construct a new support for the bladder, as in the Mayo vaginal hysterectomy. In the Mayo Clinic it is the operation of choice when the cystocele and prolapse are of grade 3 or 4. If it is used for the lesser grades of prolapse there is considerable difficulty in approximating the broad ligaments, and this predisposes to recurrence of the cystocele. If the upper edge of the tissue that encloses the approximated broad and round ligaments is firmly sutured to the fascia of the pubic rami, leaving just sufficient room for the urethra, the recurrences will be reduced to a minimum. It is an extremely safe procedure and should be used in elderly women who have passed the menopause and who have large cystoceles unassociated with intra-abdominal lesions. Repair of the pelvic floor was done in 547 (94.96 per cent) of the 576 patients. It was not performed in a small group because the perineums had been repaired previously elsewhere and the repair seemed adequate at the time of the operation at the clinic.

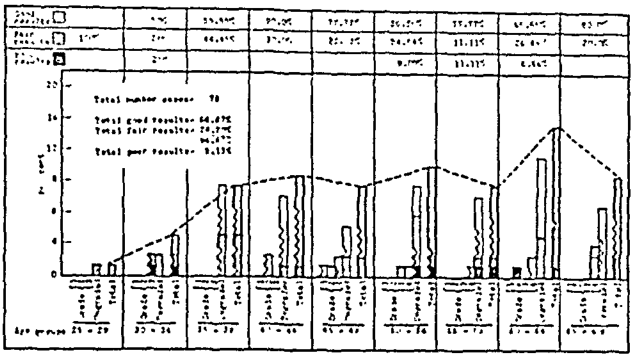

Chart 2.—Kocher operation for prolapse with (>) and without perineorrhaphy.

If the prolapse is of grade 1 or 2, if there is an associated cystocele graded 2 or higher and if it occurs in a patient who has passed the menopause and whose uterus is of normal size, the Watkins-Wertheim interposition operation may be employed. The percentage of satisfactory results obtained at the clinic corresponds closely to that reported by others. Johnson[2] reported thirty-two cases in which cure was obtained in twenty-seven (84 per cent), partial cure in two, and failure in three. Bullard,[3] in an analysis of the treatment of prolapse of the uterus at the Woman's Hospital, New York, reported satisfactory results in 96 per cent of the patients treated by this method. Clute[4] recently reported satisfactory results in 90.56 per cent following personal examination of the patients. Failures that occur are caused by applying the operation in cases in which the patients have severe degrees of prolapse, or an atrophic uterus; this may ultimately result in complete prolapse of the fundus of the uterus, bladder and vagina. The prolapse can be partially overcome by shortening the uterosacral ligaments before the uterus is sutured beneath the bladder. We prefer to confine the procedure to cases with prolapse graded 1 to 2 associated with large cystocele. Repair of the perineum aids in holding the cervix in the posterior position; this was performed in all cases in this group.

For older women who present marked prolapse of long duration with cystocele and rectocele, and who constitute poor surgical risks for extensive operations, the Kocher fixation procedure is excellent. Of the twenty-nine cases in which perineorrhaphy was performed, good results were obtained in 70 per cent, and in those in which perineorrhaphy was not performed good results occurred in 61.3 per cent. The Kocher fixation operation should, therefore, always be supplemented with perineorrhaphy at the time of the operation or soon thereafter unless adequate repair of the pelvic floor has been previously done. In a few of the cases which are recorded in the group of those with good results but in which perineorrhaphy was not done, the perineum had been repaired elsewhere. If there is not too much atrophy of the tissues, and the abdominal wall is firm, perineorrhaphy may not be necessary.

Of the 106 patients in the child-bearing period, seventy-seven were treated by the modified Gilliam type of internal shortening of the round ligaments combined with vaginal plastic operations. Fifty-six per cent were aged between 25 and 35 years. The degree of prolapse, as would be expected, was mostly of grades 1 and 2 with a corresponding degree of retroversion. Nine per cent of all patients with unsatisfactory results were aged between 25 and 35 years. In four of the cases in which the results were classified as failures the patients had recurrence of prolapse of the bladder and uterus following subsequent pregnancies. Another patient was completely cured of her symptoms for five years before recurrence developed. Three patients had recurrence of the prolapse and of the cystocele within three months; one patient had undergone a ventral suspension elsewhere, and the other two patients had remained comparatively free from symptoms by the use of a pessary.

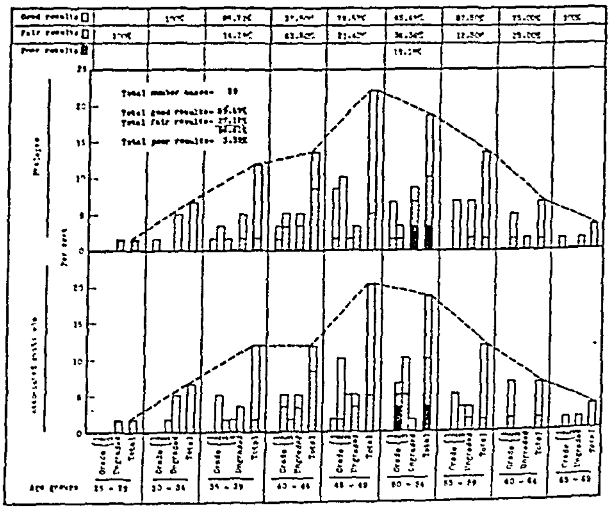

Chart 3.—Watkins-Wertheim operation.

Forty-four patients in the child-bearing period were treated by various other types of intraperitoneal shortening of the round ligaments combined with vaginal plastic operations. Sixty-one per cent of these patients were between 30 and 40 years of age. The degree of prolapse was graded 2 in practically all cases. There were three failures (8.33 per cent). Two of the patients were treated by a Baldy-Webster type of internal shortening of the round ligaments, low amputation of the cervix, perineorrhaphy, and unilateral salpingectomy. Anatomically there was no recurrence after one of the operations but the same symptoms prevailed. The other patient was completely cured for three years, when recurrence occurred following pregnancy. The third patient, a nullipara, was treated by Long's method of intraperitoneal shortening of the round ligaments. Vaginal plastic operations were not performed. Prolapse, graded 2, developed soon after the patient left the hospital; evidently this was a case of congenital prolapse.

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[2] Johnson, F. W.: End-Results in the Interposition Operation for the Cure of Prolapsus Uteri and Cystocele, Surg. Gynec. Obst. **42**: 527-528 (April) 1926.

[3] Bullard, E. A.: A Study of the End-Results of Operations for Uterine Prolapse at the Woman's Hospital, 1915-1925, Am. J. Obst. & Gynec. **11**: 623-630 (May) 1926.

[4] Clute, H. M.: Cystocele at Middle Age Treated by the Interposition Operation, New England J. Med. **199**: 994-997 (Nov. 15) 1928.

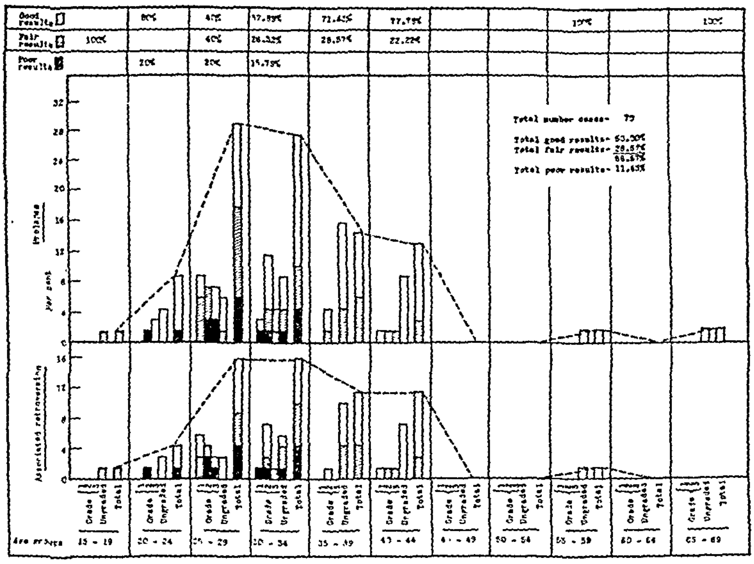

Chart 4.—Gilliam operation.

The results in the group of cases in which the modified Gilliam operation was used were studied separately from those of other types of intraperitoneal shortening of the ligaments combined with vaginal plastic operations because we feel that the Gilliam operation is more compatible with pregnancy. The incidence of pregnancy in the two groups has not been studied. It is seen by comparing the two groups that the operative results for prolapse are essentially the same in the two, but that of those who underwent the Gilliam operation the greatest number were in the half decade of life between 25 and 30 years, whereas of those who underwent other types of intraperitoneal shortening of the ligaments the greatest number was in the half decade between 35 and 40 years.

SUMMARY AND CONCLUSIONS

The series consisted of 980 patients surgically treated for prolapse of the uterus. Of this number, replies from questionnaires were received from 819 (83.56 per cent). There were sixteen deaths, a mortality of 1.62 per cent in the 980 cases. Satisfactory results occurred in 95.97 per cent of the entire series. Five types of operation were employed.

The modified Gilliam technic of internal shortening of the round ligaments comprised one group, and various other types of internal shortening of the round ligaments combined with vaginal plastic operations comprised the second group of operations used for patients of the child-bearing period. For patients who had passed the menopause, the Mayo vaginal type of hysterectomy, the Watkins-Wertheim interposition and the Kocher abdominal fixation operations were employed. From the results it is shown that the modified Gilliam operation, combined with vaginal plastic procedures, is the operation of choice among all types of internal shortening of the round ligaments when other pelvic operation is not indicated. Satisfactory results were obtained in 88.57 per cent in which the Gilliam technic was used.

The Kocher operation is reserved for that group of patients who are past the menopause, senile, and constitute poor surgical risks and for those who previously have undergone hysterectomy, with prolapse of the cervical stump. Satisfactory results were obtained in 94.87 per cent of the cases in which it was used.

If the uterus is of normal size and there is a mild degree of prolapse, graded 1 or 2, with large cystocele and the patient has passed the menopause, the Watkins-Wertheim interposition operation is successfully employed. Satisfactory results were obtained in 96.61 per cent of the cases in which the operation was used.

When the prolapse is of marked degree and is associated with large cystoceles, and the women are past the menopause, the Mayo vaginal type of hysterectomy is the operation of choice. It was employed in 81 per cent of the patients who had passed the menopause, with satisfactory results in 97.22 per cent.

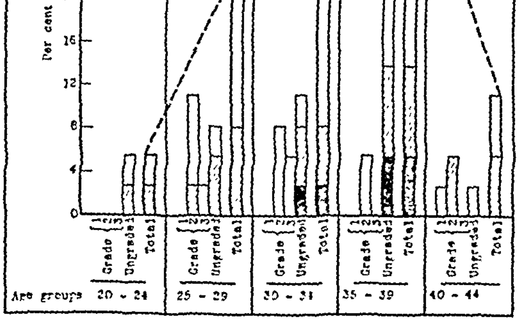

Chart 5.—Intraperitoneal shortening for prolapse.

ABSTRACT OF DISCUSSION

Dr. Carl Henry Davis, Milwaukee: I wish to congratulate the surgeons at the Mayo Clinic on having satisfied 95 per cent of their patients who have this type of condition. The question of grading the descensus of the uterus into 1, 2, 3 and 4, is one that will encounter considerable debate. Many of us think of grade 1 when the cervix comes to the introitus, and consider the large group which the author would put in the proposed grade 1 as in a group in which there is so much normal variation due to position of the bladder and the like that it need not be considered as a degree of prolapse. In the consideration of the cases treated by the modified Gilliam operation, which I believe at the Mayo Clinic is the Simpson subfascial type of shortening, and the other intraperitoneal operations, it would be interesting to know whether or not the uterosacral ligaments were shortened in the cases in which the results were not satisfactory. If the cervix comes down to the introitus, I believe that uterosacral shortening is an important part of the operation. Experience with pessaries should teach that the round ligaments after all are only guy ropes and that holding up the uterus is to a great degree dependent on the uterosacral ligaments. In the cases with ventral fixation, it is possible that some of the poor results were in a group in which there is a ventral fixation without a previous repair of a large cystocele. It is not always possible because of the patient's condition to repair the cystocele but whenever possible one should choose some type of vaginal operation, or the bladder should be advanced before the uterus is fixed to the abdominal wall. My results with vaginal hysterectomy and the overlapping of the broad ligaments as used at the Mayo Clinic have been very satisfactory. I have had no experience with recurrence of cystocele and doubt its recurrence if the broad ligaments are attached high up under the urethra. However, in watching various surgeons do this operation, I have noticed that there is not a uniformity of care in fixing the broad ligaments high under the urethra. I do not believe that the Watkins-Wertheim operation need be ruled out completely in the cases presenting a third degree prolapse. It is, however, to be ruled out except in the cases in which there is a uterus of normal size that is not diseased.

THE TREATMENT OF MALARIA

WITH SOME REFERENCE TO RECENTLY PROMOTED NEW REMEDIES *

C. C. BASS, M.D.
NEW ORLEANS

Cinchona was first introduced to civilized man for the treatment of what we now know was malaria about 1640. For many years thereafter its use was in the hands of charlatans and others who exploited it as a secret remedy for selfish purposes. Its effect in malaria is so definite and so convincing that, regardless of these circumstances, it was more and more widely used and finally accepted as a specific for fevers of almost all kinds.

Much confusion existed as to its value in fevers because no accurate differentiation could be made, at that time, between fevers due to malaria and those due to all other causes, in most or all of which cinchona has little or no effect. Notwithstanding this confusion and other disadvantages, the beneficial effect was so definite and convincing that its use spread, rapidly for those times, throughout the civilized world where malaria prevailed. Torti, in 1753, divided fevers into those that are cured by the bark and those that are not. We now know that this was a somewhat inaccurate, but at that time the best available, method of differentiating malarial fevers from fevers due to other causes.

The isolation of quinine from cinchona bark by Pelletier and Coventou, in 1820, marked another advance in the treatment of malaria. This has proved to be the most effective against malaria of any of the alkaloids of cinchona. Greater accuracy in dosage was a most important advantage of quinine over "the bark." Because of this and other advantages, quinine has been the alkaloid generally used for malaria up to this time.

Later the discovery of the malaria parasite by Laveran, in 1880, made accurate diagnosis possible and also made it possible to evaluate quinine in malaria by observing its effect on the parasites, in addition to its effect on the clinical course of the disease. To this day cinchona first and later quinine has remained the sovereign remedy for malaria the world over.

The widest range of dosage and methods of administration is practiced. This leads to great variation in the results from its use. However, it has such a definite specific effect in malaria that more or less benefit results from its use in almost any way. The fact that good results are obtained from such a wide range of dosage and methods of administration explains why there are so many different methods of treatment advocated. There are almost as many methods of treating malaria with quinine as there are authorities on the subject. Most of them are good; all have some effect, depending chiefly on the amount of the drug used and the duration of the treatment.

Quinine is so specific in malaria that I believe it can be correctly said that all cases can be relieved of clinical symptoms and finally cured of the infection with sufficient doses for a sufficient length of time, with the possible exception of severe cases in which too great damage has already occurred before the effect of the remedy can be obtained. Such cases are extremely rare. They are so rare as to permit an authority with the large experience of Major J. A. Sinton[1] to say only recently that among more than 1,500 patients suffering from benign tertian malaria he has not found a single case of quinine resistance, although many of them arrived with histories of having this condition; nor did he see relapses occur during the course of quinine treatment.

Quinine as a remedy for malaria has its drawbacks and objectionable features notwithstanding the fact that it is practically 100 per cent effective. Among the more important objections are more or less discomfort which adequate therapeutic doses cause in a good many persons; great variation in its general effect and in its antimalarial effect in different individuals, necessitating unnecessarily large doses in many; and the length of time required to cure the infection in many cases, necessitating unnecessarily long treatment in many. The latter would not be so bad if it were not for the fact that there is no method now known whereby the length of treatment that will be required to cure the infection in any given case can be determined in advance. In one case only a few days of quinine treatment may be sufficient, in another a month or two may be necessary, and in still another even as long as three months of continuous quinine treatment may be necessary.

To make it still worse, there is no method of examination that will tell whether the patient is cured of his infection or not. The fact that all clinical symptoms stop means nothing in this regard; neither does a negative blood examination. A patient who has been under treatment may have no clinical symptoms whatever, and his blood may be negative for malaria parasites, and still he may relapse within from a few days

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* From the Department of Medicine, Tulane University School of Medicine.

* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[1] Sinton, J. A.: Far East. A. Trop. Med., Tr. Seventh Cong., 1927, 2: 599-867, 1928.

to a few weeks or months with typical symptoms and many parasites in his blood.

Since there is no way of telling in advance the length of treatment that will be required in any given case to cure the infection entirely or of telling when this result has been accomplished, it is necessary to give to all patients quinine treatment over a sufficiently long period of time to cure a high percentage of cases. There is great difference of opinion as to the proper length of time. Eight weeks of continuous quinine treatment is considered by many as the proper length of treatment for routine cases. This cures the infection in almost 100 per cent of cases of the estivo-autumnal type and perhaps less than 90 per cent of the tertian and the quartan type.

There have been literally hundreds of remedies besides quinine advocated and promoted for malaria. It would be far beyond the scope of this paper even to attempt to list them. At one time or another most of the drugs used in the treatment of other diseases have been advocated for malaria, in many instances followed at first by enthusiastic endorsement.

Much of the erroneous belief in worthless remedies for malaria has resulted from overenthusiastic, inaccurate observations, associated especially with inaccurate diagnosis. A certain diagnosis of malaria cannot be made except on the presence of malaria plasmodia in the blood. Sometimes the blood examination, if made, is trusted to incompetent technicians or to others whose diagnoses are relied on in evaluating the new remedy under consideration. Most of the endorsement and advocacy of worthless remedies for malaria, however, are based on inaccurate diagnosis of cases without blood examination. While large experience may enable one to guess the diagnosis of malaria correctly in many cases, such guesswork by the best of guessers is not correct frequently enough to serve as a basis for judging the antimalarial value of unproved remedies.

Notwithstanding the enthusiasm with which many different remedies besides quinine have been advocated from time to time, all of them have gone the same way, into disuse, with the exception of certain new ones which have not been in use long enough to see what their outcome will be. I will refer briefly to two of these belonging to the arsenical group and, somewhat more at length, to an interesting new remedy, plasmochin, first introduced in 1926.

VALUE OF ARSENICALS

Arsenic in different forms has been used for malaria for a long time, usually in combination with quinine, the great importance of which was overlooked or underestimated in evaluating the arsenic. The long duration of the opinion that arsenic in one form or another has some beneficial effect on malaria would make it seem highly probable that there is some basis for the belief. Solution of potassium arsenite has long been used, as have also other forms, usually combined with quinine. Although perhaps one cannot say that arsenic in these forms has no effect, it can be said that what little effect it may have is insignificant as compared with that of quinine.

More recently arsphenamine and neoarsphenamine have been used quite extensively in some localities. Central American physicians use it more than others. The use of these preparations as remedies for malaria seems to be more closely related to the appeal for intravenous therapy than to the cure of malaria. The very fact that they are given intravenously gives them a strong appeal to patients and, I am sorry to say, to many physicians.

Intravenous administration of fluids of almost any kind has some beneficial effect in malaria and it is hard to tell whether the slight effect from arsphenamine and neoarsphenamine is due to the arsenical or merely to the damage to the blood by the intravenous fluid. Any fluid, even salt solution, given directly into the blood stream damages the blood cells to some extent and tends to make them an unfavorable soil for the malaria parasites to grow in. The addition of even small quantities of salt solution to blood in the test tube affects it in such a way that malaria parasites will not grow but soon die in it. If, on the other hand, to such blood a little dextrose but no salt solution is added, malaria parasites live and grow in it. However, the beneficial effect of arsphenamine and neoarsphenamine resulting from intravenous administration (and not from any specific action) is so slight and so variable and this method of treatment of malaria is so unnecessary that it is rapidly growing into disuse. It cannot be denied, however, that, when violent reactions are produced by intravenous medication with arsphenamine or other drugs and sufficient damage is done to the blood, malaria parasites are damaged also, and, in fact, sometimes, although rarely, complete cure results.

Acetarsone, another arsenical given either intravenously or orally, has had a rather extensive trial in malaria. Of all the newer arsenicals, perhaps this one stands out above all others for variation in the susceptibility of different individuals to its toxic effect. One individual shows little or no harmful effect of full doses and another is greatly harmed or even killed by much smaller doses. The violent reactions that occur in many cases cannot be foretold, and the symptoms produced by the inevitable injury to the liver are especially indefinite. They do, however, tend to benefit malaria by making the blood cells unfavorable soil for the malaria parasites to live and grow in. But danger and harm produced by acetarsone, in addition to the fact that its antimalarial effect is negligible as compared with that of quinine, have prevented extensive use of it. It is a fact, however, that malaria no doubt may sometimes be cured with acetarsone. There is no likelihood that its use will increase.

Sinton,[2] in a careful observation of twenty-five cases of chronic benign tertian malaria treated with acetarsone and after reviewing the work of others last year, concluded that the intravenous injection of sodium acetarsone in varying doses up to a total of 4 Gm. in five days has produced a true cure in only a small percentage of cases and has not confirmed the encouraging results claimed by other workers in this respect. However, intravenous injection of 1 Gm. of sodium acetarsone will cause the disappearance of *Plasmodium vivax* from the peripheral blood and a clinical cure in the majority of cases.

TREATMENT WITH PLASMOCHIN

A more interesting "specific remedy" for malaria, plasmochin, was promoted by Muehlens[3] first in 1926. Plasmochin is a synthetic derivative of quinoline and is somewhat indefinitely stated to be an alkyl-amino-6-methoxyquinoline salt. The resemblance of its chemical formula to that of the quinine group suggested the possibility of its having an effect in malaria. It was first tried on bird malaria by Roehl.[4] Doses of 1 cc. of a 1 : 50,000 solution for each 20 Gm. of body weight were found to prolong definitely the incubation period of malaria following inoculation in birds.

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[2] Sinton, J. A.: Studies in Malaria with Special Reference to Treatment: The Intravenous Injection of Sodium Stovarsal in the Treatment of Benign Tertian Malaria, Indian J. M. Research **15**: 287-299 (Oct.) 1927.

[3] Muehlens, P.: Treatment of Natural Malaria with Plasmochin, Arch. f. Schiffs- u. Tropen-Hyg. supp. **20**: 325-335, 1926.

Muehlens[3] reported that rapid abatement of symptoms and disappearance of parasites occurred in tertian malaria but that in the subtertian form the effect was less marked on symptoms and asexual parasites. However, the number of gametes rapidly declined and all soon disappeared. This claim of selective action against gametes, especially crescents, sounded a receptive note and greatly increased interest in this new drug. Emphasis has been laid on it by most of the large number of enthusiastic endorsers of the remedy ever since. They sometimes seem to fail to realize that crescents ever disappeared before without plasmochin. No new remedy for malaria has ever been so successfully promoted, so widely used or so enthusiastically endorsed in so short a time. While adverse reports have appeared from time to time, the favorable reports are much more numerous. Although it is only a little more than three years since plasmochin was first introduced, there is already a voluminous literature on its use, consisting largely of clinical reports and observations.

Soon after its first introduction it was apparent that, although plasmochin alone would give clinical cures of simple tertian malaria, it had little effect on estivo-autumnal malaria except for the claim that it had some mysterious specific ability to destroy crescents. The situation was happily met by combining quinine with the plasmochin in the form of so-called plasmochin compound, now put out in the form of tablets containing 0.01 Gm. of plasmochin and 0.125 Gm. of quinine sulphate. The directions in the latest circular of the manufacturers advise giving two tablets three times daily. This corresponds to 0.75 Gm., or about 12 grains, of quinine daily. Practically all plasmochin used in clinical tests for the last year or two has consisted of this combination with quinine. The results are bound to be good in most cases for they would be from the same amount of quinine without the plasmochin. There is a tendency to lose sight of the quinine and to attribute the results to plasmochin. As a matter of fact, corresponding results are produced by the same amount of quinine without the plasmochin. But the very fact that clinical and parasitic cures are obtained from plasmochin alone in some cases of tertian malaria would justify the belief that the antimalarial effect of the two drugs combined may be somewhat greater than that of either alone in this type of malaria and possibly in others. However, it is difficult to measure this increased effect for the reason that few or no cases of tertian malaria can be found in which 12 grains of quinine daily does not promptly control the clinical symptoms. The effect of plasmochin compound in malaria should not be attributed to plasmochin primarily. To the quinine should be attributed such effect as results from quinine without the plasmochin. If this correct line of evaluation is followed, there will not be so much effect left for the plasmochin.

Plasmochin has a high toxicity and this seems to vary greatly in different individuals. The toxic symptoms that have been noted consist chiefly of cyanosis, pallor, nausea, gastric pain and distress, headache, dizziness, epistaxis, hemoglobinuria and weakness. Such unforseeable individual results and sometimes grave symptoms may arise without warning. Brosius[5] reported ten, or 16⅔ per cent, of sixty patients taking as much as 0.06 Gm. daily as suffering from cyanosis, hemoglobinuria, nausea, headache or relapse. Two deaths occurred in about 200 patients treated, in neither of which did the autopsy reports absolve plasmochin from blame, if not from being the definite cause.

In this report, other members of the medical staff of the United Fruit Company reported their experiences with plasmochin. Cordes[6] says: "In occasional cases without previous warning very grave symptoms arise. It is only since we have used plasmochin that these accidents have repeatedly occurred with striking similarity." Phelps,[7] who had some undesirable reactions in eleven of nineteen cases, stated it as his belief that "it is a dangerous drug with unforseeable individual results." Macphail,[8] on the other hand, from his experience with a considerable number of cases, considered it safe under very ordinary supervision.

In a group of eighty-six patients given plasmochin, either with or without quinine, in doses of 0.08 Gm. daily, Sinton and Bird[9] found it necessary to discontinue the treatment on account of toxicity in five cases. A 71 per cent relapse rate occurred in a group of fourteen patients with tertian malaria who were given plasmochin alone or plasmochin compound against a 14 per cent relapse rate in a group of seven patients given quinine and alkali.

The blood of patients with severe toxic symptoms is chocolate colored, and methemoglobinemia, as well as methemoglobinuria, is always present. In fact, methemoglobinemia is produced although no toxic symptoms are recognized. This occurs both in experimental animals and in man in practically 100 per cent of cases.

Fischer and Weise[10] made an extensive study of the cause of the cyanosis in plasmochin poisoning and found that methemoglobin could always be detected in the blood of twenty-five out of twenty-six patients within a few days after the commencement of treatment, while treatment was continued and for some time afterward. The intensity and duration increased with prolonged administration.

As has been pointed out, anything that damages the blood sufficiently makes the blood cells an unfavorable soil for malaria plasmodia to live and grow in and thereby tends to benefit malaria. The methemoglobinemia practically always produced by therapeutic doses of plasmochin would offer a plausible explanation for the limited effect thus far demonstrated for this drug. However, there may be considerable question whether such blood damage, even to the extent of producing chocolate colored blood in some cases, can be justified in view of the well known less effectiveness of the drug on clinical malaria than that of quinine. Final conclusion as to the justification of its use must await still further knowledge and experience as to the extent of the harm it does and the advantages to be derived from it.

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[4] Roehl, W.: Plasmochin in Bird Malaria, Arch. f. Schiffs- u. Tropen-Hyg. supp. **30**: 311-318, 1926.

[5] Brosius, O. T.: Plasmochin in Malaria, United Fruit Company, Boston, Sixteenth Annual Report, Medical Department, pp. 26-52.

[6] Cordes, Wilhelm: Observations on the Toxic Effect of Plasmochin, United Fruit Company, Sixteenth Annual Report, pp. 62-67.

[7] Phelps, B. M.: Clinical Results with Plasmochin, United Fruit Company, Sixteenth Annual Report, pp. 70-76.

[8] Macphail, N. P.: Plasmochin in Malaria, United Fruit Company, Sixteenth Annual Report, pp. 67-69.

[9] Sinton, J. A., and Bird, W.: Studies in Malaria with Special Reference to Treatment: IX. Plasmoquine in the Treatment of Malaria, Indian J. M. Research **16**: 159-177 (July) 1928.

[10] Fischer, O., and Weise, W.: On the Actions and Side-Actions of Plasmochin in the Treatment of Human Malaria, Deutsche med. Wchnschr. **53**: 1380-1382 (Aug. 12) 1927.

ACTION OF PLASMOCHIN ON GAMETES

Now comes the most remarkable of all claims and experiences with plasmochin. One of the claims that has been put forth for plasmochin from its first introduction is that it has some selective and destructive action against the gametes of all kinds of malaria, but especially the crescents of *Plasmodium falciparum*; this in spite of the fact that the effect on the asexual forms of this parasite is so limited as to necessitate the use of quinine to control clinical symptoms. It is possible that many such statements and claims are merely the repetition of similar claims made by others and in many instances not based on carefully controlled observations.

Several apparently competent observers claim that they have found some alteration of the staining qualities or other changes in the appearance of the parasites. Others have not been able to confirm such observations. Only time and further accurate studies can tell whether this is the case or not.

Barber, Komp and Newman[11] fed susceptible mosquitoes on patients at various periods following the administration of plasmochin. The infectiveness of these patients to mosquitoes before plasmochin was given was proved by feeding and subsequent dissection of the mosquitoes. Only patients proved in this way to be capable of infecting mosquitoes were used for the plasmochin experiments. In three such subjects who were available, administration of plasmochin was followed by failure to infect. This result is the more remarkable in view of the fact that the gametes in some of the cases following plasmochin were observed to be alive and, in fact, exflagellation was also observed. Still more remarkable was the observation that in one case apparently the gametes were made impotent within a few hours by an infinitesimal dose of 0.5 centigram of plasmochin. This is a dose only about 1/140,000,000 of the body weight. Such selectivity is so rare, if it has ever occurred before, that it will be necessary for this work to be confirmed in a larger number of cases before it can be accepted as conclusive, notwithstanding the care the authors exercised for accuracy.

Deeks[12] states that these results have been confirmed to a considerable extent at least by Colonel Eugene Whitmore. He found that the administration of 1 centigram of plasmochin did not always prevent oocysts from developing in the mosquitoes, but that they were fewer in numbers. Furthermore, in no instance were mosquitoes infected that had fed on patients who were given 2 centigrams of plasmochin.

SUMMARY

1. Cinchona alkaloids, especially quinine, constitute the only specific remedy for malaria.

2. Arsphenamine, neoarsphenamine and acetarsone have some nonspecific effect, as do many other drugs, but such effects are so far inferior to that of quinine that their use is on the decline.

3. Plasmochin has a definite effect on clinical malaria and both clinical and parasitic cures may be accomplished with it alone. Plasmochin has far less effect on malaria than has quinine, and its toxicity, which is associated with methemoglobinemia, makes its routine use questionable.

4. Evidence has been brought forth by others that plasmochin has some specific action on the reproductive power of gametes. These observations are of great importance, if correct, and need further confirmation.

1551 Canal Street.

ABSTRACT OF DISCUSSION

Dr. L. L. Williams, Jr., Richmond, Va.: To those primarily interested in the cure of malaria it is comforting when so close a student of malaria iterates the curative value of quinine and relegates to their proper places many of these latter day medicines, which, although somewhat beneficial, are not nearly so much so as quinine. Dr. Bass again performs a real service in emphasizing the superiority of the oral method of administration of quinine and in stressing the importance of giving the patient quinine in a form that may be easily retained and assimilated.

Dr. Bass has picked out the true value of plasmochin and has given it its proper place in treatment. Alone it will cure cases of benign tertian malaria. When used in conjunction with quinine in cases of benign tertian malaria the relapse rate is much less than when quinine alone or plasmochin alone is used. In malignant tertian malaria, however, plasmochin has no effect on the clinical course. In the proper treatment of malaria it is essential in the best interests of the patient that an accurate diagnosis be made of the type of malaria. Various workers studying the malarial paroxysm in the malignant tertian form found a considerable lessening of the alkali reserve of the body.

Sinton's experience showed that after only 110 grains (7 Gm.) of quinine with magnesium sulphate the cure rate was 60 per cent, and that when alkali was added the cure rate rose to 72 per cent. In another series of 237 cases without alkali the relapse rate was 72 per cent, whereas 281 cases treated at the same time with the addition of alkali showed a relapse rate of only 35 per cent.

The development of plasmochin and quinine for benign tertian, and alkali and quinine for malignant tertian malaria, with a possible public health benefit from the action of plasmochin on gametocytes, is the greatest advance in malarial therapy since the isolation of the alkaloid from cinchona bark.

Dr. Allen H. Bunce, Atlanta, Ga.: Quinine is a safe drug. It cures malaria. It may be given to the most ignorant patient with little or no supervision. Plasmochin is a dangerous drug and should never be given except under the closest supervision. In the two cases of plasmochin poisoning which I have studied, one of which proved to be fatal, in addition to the symptoms mentioned by Dr. Bass I found a hypoglycemia. This hypoglycemia suggests a method of treatment of plasmochin poisoning which will surely occur if plasmochin is used. I see no reason for giving up a safe, dependable treatment for malaria for something that is dangerous, except when patients can be kept under close observation.

Dr. C. D. Pillsbury, Washington, D. C.: Three or four years ago I had the experience of conducting the pediatric service at Gorgas Hospital in the Canal Zone, in which institution of course there is a large incidence of malaria, of both the tertian and the estivo-autumnal type. Plasmochin was introduced, as Dr. Bass has said, about 1926, but did not reach the Canal Zone for use in malaria until about a year and a half to two years later. We did not regard it as being worthy of routine use by any means, but in view of the fact that a large number of our patients were from the families of colored employees of the canal, and the economic factor entered decidedly in the prolongation of hospitalization (requiring as we did three negative blood smears before the patient could be discharged), and as we found that in the case of estivo-autumnal malaria many of these children showed crescents persistently over a long period, in an attempt to shorten the period of hospitalization we began to use plasmochin in these selected cases, though always with the continuation of the quinine treatment. Our experience was necessarily limited because only a relatively few cases were resistant, that is, showed the persistence of the crescents over a period of ten days to two weeks after the temperature had been normal. In these cases, however, there did seem to be some benefit to be derived from the use of plasmochin, in that the crescents rather rapidly disappeared from the peripheral blood. In one case we withdrew the plasmochin as soon as the first negative blood smear was obtained and in a day or two later the crescents reappeared. Plasmochin was resumed, the crescents did not reappear, and the patient was discharged. This represents only a few cases, but my impression was that plasmochin was of some value in the control of crescents in estivo-autumnal malaria.

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[11] Barber, M. A.; Komp, W. H. W., and Newman, B. M.: The Effect of Small Doses of Plasmochin on the Viability of Gametocytes of Malaria as Measured by Mosquito Infection Experiments, Pub. Health Rep. **44**: 1409-1420 (June 14) 1929.

[12] Deeks, W. E.: Recent Developments in the Control of Malaria, South. M. J. **23**: 417-420 (May) 1930.

Dr. C. C. Bass, New Orleans: The experience of Dr. Bunce, that there is a hypoglycemia, would be expected, I presume, from the serious damage that is done also to the liver. In all autopsies on plasmochin poison cases, the liver and the kidney are damaged. I am advised by biochemists that exactly this effect should result from aniline and aniline derivatives of almost any kind. I do not want to be misunderstood as claiming that plasmochin does not have any effect in malaria. I am sure that malaria can be cured with plasmochin as with many other things, but the question I think would naturally arise at the present time as to whether the price paid is worth the results.

ORTHOPEDIC ASPECTS OF CHRONIC RHEUMATISM OR ARTHRITIS *

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It is perhaps fitting that I should offer some explanation, if not a defense, of the invasion of a general medical field by a surgical specialty. The purpose of the invasion was to help defeat a strongly intrenching enemy of health whose ally seemed to orthopedic surgeons to be the lethargy of the general practitioner toward the importance of the problem of chronic arthritis and toward its solution.

Orthopedic surgeons were faced originally by the widespread deformities of the joints that were associated with the active disease and that persisted as fixed crippling deformities after the fires of active disease had burned themselves out. They have become aware of the generalized nature of the disease, of the frequent failures to relieve completely or even to influence materially the course of the disease by the surgical removal of supposed bacterial foci of infection, and of the contrasting successes of treatment planned along general lines of physical and mental rehabilitation and an appropriate dietary and eliminative regimen. The orthopedic surgeon has been the last resort rather than the first resort, and this fortunate attitude of the public, by enabling him to see the pitiful end-results, has stimulated him to attempt by any means he could devise to prevent these deformities and to recognize the prodromes of the disease. My defense is ended and I hope you will look on me as an ally in a common cause, ready to be told to return to my own particular business when our common enemy is evidently facing defeat.

CLASSIFICATION

Orthopedic surgeons dealing with acute and advanced cases of chronic arthritis have been conscious of two very different forms of the disease. These different types were evident and were characteristic at the onset, during the course and in all but the very terminal lesions of the disease. They show a different age incidence, a different anthropological body type incidence. The earliest microscopic and macroscopic changes in joint tissue are different and these changes continue to be characteristic throughout the course of an unchecked disease. Clinical investigators, pathologists and the patients themselves have all recognized the two main types. It may be possible, with increasing knowledge, to subdivide these two types many times. For the moment, a simple working classification and general recognition of at least two types is desirable, for their prodromal signs and symptoms are different, their local joint changes are different and it would seem as if the medical treatment of the two types should, in some respects at least, be different. The orthopedic treatment of the joint lesions themselves in the two types differs essentially. I shall call them the atrophic and hypertrophic types, because this terminology is perhaps most commonly employed in current American medical literature. It seems to be more differentially descriptive and more easily understood than the British terminology of rheumatoid arthritis and ostearthritis. It is the nomenclature that has been adopted by the American Committee for the Control of Rheumatism.

The first type is called atrophic, because, although the earliest pathologic change is proliferation of the synovial membrane, which one may only guess at in the roentgenogram, there is also a very early diminution in the density of the bone ends which can be appreciated as atrophy in the roentgenogram and soon as actual loss of substance; there is an early atrophy of the muscles controlling motion of the joints; and the disease is much more common in the slender, asthenic, atrophic type of person. The age incidence is from birth to middle life.

The second type is called hypertrophic, because, although the primary change may be a fibrillation of the articular cartilage that cannot be detected in the roentgenogram, there is almost simultaneous lime salt deposit in the form of chondro-osseous spicules and ridges at the articular margins, which is easily visible in the roentgenogram; there is no appreciable atrophy either of the bone ends or of the muscles controlling motion of the joints until very late; and the disease is perhaps more common in the stocky, sthenic, well nourished hypertrophic type of person who tends to an overdeposit of calcium in his tissues. Its age incidence is from middle life to death. As the disease progresses, in each type these characteristic changes become more striking in the roentgenograms, to the eye, when the joints are opened and in microscopic sections of tissue. The gross pathologic changes and the microscopic changes are consistent.

[Lantern slides were shown illustrating the following characteristics of the two types:]

A. In the atrophic type:
    1. Proliferation of the synovial membrane.
    2. Thinning and loss of calcium from the trabeculae of the bone ends; much fat.
    3. Erosion and imprisonment of articular cartilage; pannus formation.
    4. Loss of substance of bone ends and bony ankylosis.

B. In the hypertrophic type:
    1. Early delicate spicules forming at the articular margins, with no diminution of the density of the bone shadows and no evident change in the articular cartilage.
    2. Increase in the chondro-osseous hypertrophic overgrowths of the bone ends, with changes in the articular cartilage.
    3. The formation of joint mice, which is common.

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* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

4. Dense trabeculation at bone end, in contrast with atrophic type.
5. Final loss of articular cartilage and eburnation of the bone beneath; deformation of bone end, but no bony ankylosis. Malum coxae senilis.

ORTHOPEDIC ASPECTS

In what ways may the orthopedic surgeon be useful in helping to control the types of diseases included under the term chronic arthritis? First, along with the rest of the medical profession by becoming aware of the wide incidence of the disease; second, by recognizing the prodromal signs and symptoms of the generalized disease; third, by helping to prevent deformity in the active stages; fourth, by restoring function by means of appliances and surgery when the disease has become quiescent.

Differences in Incidence, Onset, Signs and Symptoms, Roentgenologic Appearances and Morbid Histology in the Two Main Types of Chronic Arthritis Designated as Atrophic Arthritis and Hypertrophic Arthritis

	Atrophic Arthritis	Hypertrophic Arthritis
Common synonymous terms used in other classifications	Still's disease; rheumatoid arthritis; proliferative or ankylosing; arthritis deformans; spondylitis; Mabie-Strümpell syndrome	Ostearthritis; degenerative or nonankylosing arthritis; menopause arthritis; ostearthritis of the spine, von Bechterew syndrome
Incidence:		
Age	From infancy to middle age	From middle age till death
Body type	More common in slender, ptotic women	More common in stocky, well nourished men and women
Onset	Acute to insidious	Subacute to ignorance of presence
Symptoms and signs	General health usually not robust; pain and disability often pronounced; joint swellings and muscle atrophy to be observed	General health usually excellent; pain and disability usually slight; joint swellings and muscle atrophy rarely noticeable
Roentgenologic Appearances:		
Early	No apparent cartilage or bone changes; generally, increased density of soft parts of joint	Slight "lipping" of articular margins; no general increased density of soft parts of joint
Late	Diminished density or bone atrophy; narrowed articular space; subluxation and ankylosis	Unless through long nonuse, no diminished density of bone; articular space irregular; hyperostoses; no ankylosis
Morbid histology:		
Early	Early proliferation of synovial membrane; pannus; usually small round cell infiltration	Early fibrillation of articular cartilage; no general proliferation of synovial membrane or small round cell infiltration; chondro-osseous hypertrophy of articular margins; joint mice
Late	Late destructive and atrophic processes in cartilage and bone; fibrous or bony ankylosis	Eburnation, deformation and hypertrophy of articular bone ends; cyst-like cavities in cancellous bone near the articular surface; no true bony ankylosis

Prodromal Stage.—Rheumatism is said to run in families. Physicians have been impressed with the strong hereditary tendencies of chronic arthritis.

Atrophic arthritis is much more common in the young, thin, ptotic type of person. Women are more susceptible than men. The "set up" is inefficient. Their muscles are poor, their thoracic cages are narrowed, their diaphragmatic excursion is small, their abdominal viscera are sagged, the weight bearing lines of their joints are not true, muscle tonus is hard to maintain because the center of gravity is disturbed. They are fatigued. Their body mechanics is wretched. If bad body mechanics can be converted into good body mechanics; if inefficient "set ups" can be changed into efficient ones by positional rest periods, exercises and temporary supports; if more room can be provided in the thoracic cage for heart and lung action; if the diaphragmatic pump can be set working again on the abdominal veins and viscera; if their symptomatic joints can have their normal weight bearing thrusts restored; then there would seem to be inevitably less wear and tear, a higher circulatory coefficient, more nearly normal alimentation, less fatigue and a better chance for the defense mechanisms of the body to overcome whatever bacterial or chemical toxins are being elaborated, which presumably are or will be responsible for the symptoms in the joints.

With the cooperation of the patient and by the intelligent, patient effort of his physician, the skeletal structures and the relation of the viscera in both adults and children may be remodeled to a surprising extent.[1]

In hypertrophic arthritis, the same principles of improving faulty body mechanics obtain. With its older age incidence, the remodeling of the body is harder but, fortunately, there is usually less remodeling to be done. Supports are easier to apply and are more gratefully received. Fixation and protection relieve symptoms enormously. They may be applied without danger of interfering with the motion of the joints, and in the early stages are often only a temporary or intermittent necessity.

As Pemberton and Peirce have shown, there seems to be a deficient blood supply to arthritic joints. In the early stages of the disease when there may be no joint signs and only intermittent joint symptoms, increasing the local blood supply to joints by heat, massage, voluntary exercise and general physical therapy may well restrain, if not prevent, permanent changes of tissue in the joints.

It is, of course, to be understood that at this stage all possible true bacterial foci are being overcome, the balance between physical and mental outgo and intake is being restored, and all dietary surfeits or deficiencies are being corrected and elimination assured. These measures and others come within the purview of the internist.

I am eager, however, to interest the general profession in this matter of body mechanics. There is evidence to suggest that the association of poor body mechanics and poor health is not incidental but is potentially important, and that good body mechanics stands in a partly causal relation to good health. It seems to orthopedic surgeons that the attainment and maintenance of good body mechanics should be a sine qua non in the treatment of all forms of chronic arthritis.

Prevention of Deformity and Maintenance of Joint Motion.—To army medical officers it is hardly necessary to emphasize the importance of avoiding preventable deformity. The methods of prevention are simple; they include traction and the intermittent use of splints and appliances and of voluntary motion of the joints. If a joint threatens to become permanently stiff in spite of treatment, the optimum functional positions of ankylosis must be constantly kept in mind. A straight stiff elbow is vastly more useless than a right angle stiff elbow. We are not horses but men, and equinus of the foot is awkward. Knees left flexed more than 25 degrees throw all the other weight-bearing joints out of true.

Local Treatment of Joints.—The primary object of local treatment of the affected joints should be to increase their blood supply. Heat in its various forms of application, massage, and voluntary exercise, stopping short, of course, of irritation of the joints; in other words, intelligent physical therapy, often attended by its useful handmaiden occupational therapy, relieves pain and improves function.

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[1] The methods for accomplishing this are described in a little book entitled "Body Mechanics and Health," by Miss Leah C. Thomas, Boston, Houghton Mifflin Company, 1929.

Sensitive weight-bearing atrophic joints tending to contractures may with advantage be supported by light apparatus in order to allow painless and nonirritating functional use so important in combating the atrophy of nonuse. A word of caution may be given here concerning too complete and too continuous fixation of joints in the atrophic type. Adhesions are prone to occur and atrophy increases very rapidly. A little pain is the lesser evil.

Protection by apparatus to sensitive hypertrophic joints is always grateful to patients and often relieves them of all discomfort. There is no danger of ankylosis in even completely fixing these joints for several days. There is less fear of producing atrophic changes in the bone.

There is no specific drug or vaccine for all cases of either type. There are many different drugs which are useful and appropriate for different cases and at different stages of the disease. The correction of actual endocrine deficiencies sometimes strikingly relieves arthritic symptoms. The orthopedic surgeon sits at the feet of the internist in respect of drugs.

Surgery.—Thus far, it seems as if the orthopedic aspects of chronic arthritis which I have mentioned ought to be, or to become, medical aspects as well. These measures are not orthopedic measures; they *should be the measures of general medicine.* Surgery, narrow as its field is in chronic arthritis, may perhaps be looked on as an orthopedic aspect until orthopedic surgery is again absorbed by general surgery, which should be its desired goal.

The surgery of chronic arthritis is patchwork surgery. Little is to be hoped from surgery while the disease is active. Perhaps the aspiration of a tense atrophic joint, perhaps the removal of an impinging hypertrophic spur, with no guarantee of its nonrecurrence if the disease is active; perhaps the removal of an incapacitating joint mouse.

When the disease has been arrested, surgery may restore large amounts of function. If an incapacitating proliferation of the synovial membrane persists, the whole membrane may be excised and it will regenerate as well as repair. Division of adhesions in the joints and contractures of muscles and joint capsules may improve motion and make possible good weight-bearing lines. Reconstruction operations, occasional formal and informal arthroplasties to restore motion, occasional arthrodeses to stop pain, in joints whose remaining few degrees of motion are a menace rather than a blessing: these are the main conrtibutions of surgery to the relief of chronic arthritis and, from the point of view of the patient who needs them, are great contributions. Let us remind ourselves, however, that in general they are necessary only when the patient's medical advisers have not been sufficiently alert or the patient has sought informed advice too late.

Every one will admit that chronic disease is the most important health problem of the present day as it has been through the centuries, but that too little attention is paid to it. Chronic rheumatism is the most widespread of the chronic diseases and both socially and economically the most important. In a recent house to house survey of two widely separated communities in the state of Massachusetts, each including both urban and rural inhabitants, fair samples of the whole state, chronic rheumatism was twice as common as heart disease, six times as common as tuberculosis and fifteen times as common as cancer. The European figures gathered by the International Committee for the Study of Rheumatism are quite as striking. The American Committee for the Control of Rheumatism, a branch of the international association, at its 1929 October meeting unanimously agreed on a concept of the disease. It is short and inconclusive but to my mind marks an epoch in the control of chronic arthritis because it means that internists and surgeons and research workers have been able to agree as to the probable nature of the disease and as to lines along which efforts for its control should be directed.

CONCEPT OF THE AMERICAN COMMITTEE FOR THE CONTROL OF RHEUMATISM CONCERNING THE DISEASE COMMONLY CALLED CHRONIC RHEUMATISM OR ARTHRITIS

1. The disease chronic arthritis, prevalent in all temperate zones, represents one of the most important, if not the most important, of existing social and industrial handicaps.

2. The committee conceives of the disease as a generalized disease with joint manifestations. Certain prodromes may be recognized. It is of vital importance that they be recognized.

3. It is the opinion of the committee that at the present time no single infectious agent or any completely defined dietary deficiency or metabolic disturbance has been conclusively shown to be the sole cause of these disorders. The committee inclines to the belief that any one of these factors or certain combinations of these factors under appropriate circumstances may basically underlie the onset of the disease.

4. The committee feels it of vital importance that the medical profession have its attention directed to the methods of proved value which are at present at its disposal. In spite of etiologic uncertainties, the committee feels that properly managed therapy which takes into account both infectious and metabolic factors has yielded results which encourage optimism and impose the obligation of further developing such methods.

5. In the light of the foregoing considerations the committee purposes to broadcast as widely as possible both to the profession and to the public its concept of the nature of the types of arthritis included under the heading chronic rheumatism, its belief as to the probable predisposing and exciting causes of the disease, and the knowledge which the committee possesses or may acquire as to the most efficient methods of treatment.

CONCLUSION

I have been suggesting that there may be an orthopedic aspect to chronic arthritis; perhaps the relation of orthopedic surgeons to internists is slightly analogous to that of the physicists to the astronomers. As Professor Douglas reflects, "The riddles of the stars cannot be solved without involving the aid of the atoms, nor can the atom be comprehended without the aid of the stars." You internists are the stars. The orthopedic surgeon may be the atom.

372 Marlborough Street.

ABSTRACT OF DISCUSSION

Dr. Ralph Pemberton, Philadelphia: In the last analysis, the group in medicine which has known much about this topic, because of having to be interested in it, is the group represented by orthopedic surgery. While Dr. Osgood was too polite to say so, he knows that orthopedists got their experience in large part because of the errors which we internists have committed. The study made by Nichols and Richardson twenty or thirty years ago was really made possible because of the interest which Dr. Osgood and a few of his confrères had in arthritis. Probably only a few here realize the degree to which circulatory dynamics play a part in this problem. Those who have followed the work of Bock and his colleagues, based on the work of Haldane and other English physiologists, know that in any healthy individual the efficiency of the heart output may be reduced 50 per cent or more in changing from the recumbent to the erect posture. Think what that means in terms of the individual whose body mechanics and therefore whose circulatory mechanics is not correct. The evidence is strong today that at least part of the pathology of arthritis is referable to disturbance in the finer vascular blood supply. Dr. Osgood has helped us to understand that arthritis is a systemic disease; that it has prodromes; that the joint manifestations are only local expressions of the systemic disturbance and that this process may manifest itself elsewhere. Arthritis, as Charcot pointed out fifty or seventy-five years ago, is simply a branch of a great pathologic tree. We talk about "arthritis" because the joint symptoms are the most conspicuous and not because they constitute the whole story. One of the fine things that Dr. Osgood has done has been to introduce criteria of a stable nature in this field. There are many more needed, to be sure, but these questions of classification, the relation of the body mechanics, the condition of the viscera, and the question of the circulation as a whole are of fundamental importance. There is no justification today for any thoughtful physician to feel at sea in this disease. The amount of useful data available to any one who wants to inquire into the disease is large. It is the feeling of many of the American Committee for the Control of Rheumatism that there are few chronic diseases for which more can be done.

DR. RUSSELL L. CECIL, New York: Dr. Osgood has stressed the differentiation of chronic arthritis into two groups. I should like to suggest some differences in their etiology. The atrophic type—Dr. Osgood has referred to the inflammatory change that occurs in the joint, the so-called pannus, which is nothing more than granulation tissue, similar to that seen in any other inflammatory focus. This granulation tissue can readily be duplicated in rabbits injected intravenously with streptococci. They develop an experimental arthritis which goes to a chronic form and histologically the lesions produced in the rabbit are identical with those seen in man with the atrophic type of arthritis. On the other hand, the hypertrophic type of arthritis cannot be produced experimentally by bacteria. Bony changes may occur late in the disease just as they do in man, but a true hypertrophic arthritis is not produced in that way. It can be produced, however, by exciting trauma in the joint, for example, by putting a foreign body into the rabbit's joint. This rather indicates that atrophic arthritis is an infectious process and that the hypertrophic arthritis is bound up in some way with trauma or wearing out of the joint. In the laboratories at Bellevue Hospital, we have never been successful in getting bacteria of any kind from the hypertrophic joint. This also bears out the theory that atrophic arthritis is an infection, and that hypertrophic arthritis is a degenerative process. Furthermore, in recent studies not yet published we have found that the blood of patients with atrophic arthritis shows high agglutinins for arthritic streptococci, while these agglutinins are absent from the blood of patients with hypertrophic arthritis. Thus more and more evidence is accumulating that these two types of arthritis, both of which produce pain and discomfort and loss of function in the joint, are perhaps entirely different processes. The importance of this point of view is great from the standpoint of treatment. It means that in the atrophic type one's first efforts should be directed to removing all foci of infection and then one should proceed to build up the patient in a constitutional way, whereas in the hypertrophic type one is perhaps not so eager to remove foci but will direct attention to resting the joint, relieving strain, and giving the joint support of various kinds.

DR. W. PAUL HOLBROOK, Tucson, Ariz.: Out of a series of about 200 carefully studied patients with chronic arthritis in the past year more than half had definitely preventable deformities, had they had attention earlier.

DR. ROBERT B. OSGOOD, Boston: If these cases are treated early, the orthopedic surgeon will not have any cases to treat. The orthopedic surgeon is at present faced with this situation: he sits in his office and sees patients come in without teeth, without tonsils, without every known or unknown surgical focus, and the only thing they have left is their arthritis, which is just as bad as ever and going on quite as merrily. I do not mean to infer that these cases should be treated without removal of surgical foci. There may yet be discovered a specific bacterium. Many investigators have found specific bacteria. Dr. Cecil is seemingly nearer than any one else and all hope that he has identified the specific bacterium of this disease; but if he has, something more than merely treatment by specific attack must be done for these patients as they are tired out, they are fatigued, they are weary; they have other disturbances than those which their bacterial foci may have induced and which cannot be treated solely by bactericidal methods. I call attention to the third paragraph of this concept of the committee, of which Dr. Pemberton, Dr. Cecil and I happen to be members. We have all agreed to sign this: "It is the opinion of the committee that at the present time no single infectious agent or any completely defined dietary deficiency or metabolic disturbance has been conclusively shown to be the sole cause of these disorders. The committee inclines to the belief that any one of these factors or certain combinations of these factors under appropriate circumstances may basically underlie the onset of the disease." I happened to pick up this intriguing book of Haldane's and in it I found a paragraph that appeals to me strongly. He is talking about chronic diseases and says: "We are not likely to deal with them effectively on Pasteur's lines. We must divert our view from the microorganism to the patient. Where the doctor cannot deal with the former he can often keep the patient alive long enough to be able to do so himself."

STREPTOCOCCAL INFECTIONS OF THE EPIPHYSES AND SHORT BONES

THEIR RELATION TO KOHLER'S DISEASE OF THE TARSAL NAVICULAR, LEGG-PERTHES' DISEASE AND KIENBOCK'S DISEASE OF THE OS LUNATUM [*]

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ALEXANDER BRUNSCHWIG, M.D.
AND
LOIS DAY
CHICAGO

Bacteriologic studies have been undertaken in a group of obscure but kindred necrosing bone lesions, among which are Kohler's disease of the tarsal navicular, Legg-Perthes' disease, and Kienbock's disease of the carpal semilunar, in an endeavor to throw some light on their etiology. The most feasible causes to which they have been attributed may be grouped under the headings of infection, embolism and trauma. Axhausen considers the condition an anemic infarction from a mycotic embolus or a thrombus but without bacterial infection of the field. While these and the kindred necrosing lesions have been studied pathologically in great detail, particularly by the Germans, they have been investigated very little from a bacteriologic standpoint. In the few cases in which cultures have been made, they have usually been reported as sterile. In this series, cultures have been taken in two cases, each of Kohler's disease of the tarsal navicular bones, Legg-Perthes' disease, and Kienbock's disease of the lunatum. Streptococci grew in the cultures of four cases: one of Kohler's disease, one of Legg-Perthes' disease, and two of Kienbock's malacia. In one case of Kohler's disease in a child with multiple osseous and glandular tuberculosis, the cultures were sterile and guinea-pig inoculations were negative for tuberculosis.

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[*] From the Department of Surgery of the University of Chicago.

[*] Read before the Section on Orthopedic Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

Case 1.—*Kohler's disease.* A boy, aged 7, who entered the University of Chicago Clinics, Dec. 10, 1929, began to have pain in the medial midtarsal region of the left foot, thirty hours before admission. It soon became severe enough to prevent him from walking, and he developed malaise and fever. Six weeks previously he had an attack of sore throat with fever, enlargement of the upper cervical lymph nodes, discharge from the left ear, and an erythematous skin eruption which lasted three or four days. The fever and malaise lasted several days and he was in bed for about two weeks. The ear continued to discharge until recently and the general run-down condition has persisted to date.

Physical examination revealed a poorly nourished boy who appeared to be acutely ill and who experienced severe pain on movement of the left foot. The temperature at admission was 101 F. Regional examination showed the tonsils enlarged, cryptic and slightly inflamed. The upper deep cervical lymph nodes were slightly enlarged. There was no discharge from the ears. The heart was of normal size and no abnormal sounds were heard over it. The extremities were normal aside from the left foot, which was slightly swollen and markedly tender in the region of the left navicular bone. Blood examination revealed: red blood cells, 4,800,000; hemoglobin, 80 per cent; white blood cells, 19,000. Differential count: polymorphonuclears, 75 per cent; large lymphocytes, 3 per cent; small lymphocytes, 18 per cent; mononuclears, 4 per cent. Blood cultures were made on three flasks of dextrose broth and four tubes of Rosenow's brain broth. A roentgenogram (fig. 1) showed the shadow of the bony center in the left tarsal navicular to be irregular in outline and narrowed in its longitudinal axis. There was irregular reduction in density in its dorsal and distal portion, with increased density in its central portion. Roentgenograms of the right foot showed a normal shadow of the navicular bone.

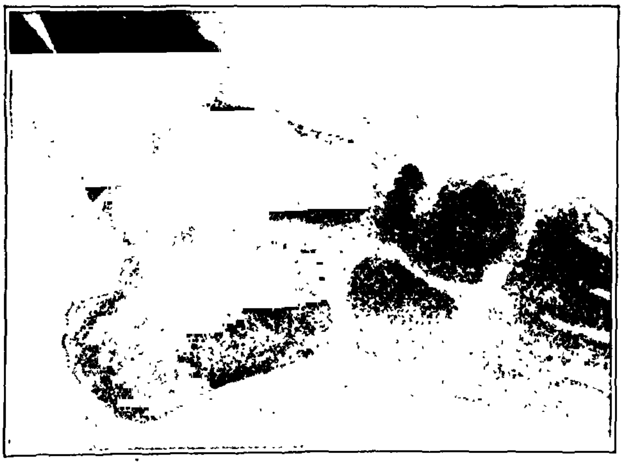

Fig. 1 (case 1).—Latent lesion of os naviculare producing symptoms for thirty hours.

At operation, thirty-six hours after onset of symptoms, the navicular bone was exposed through a dorsomedial incision. There was slight edema of the tissues about it and a slightly turbid fluid in the talonavicular joint. The navicular bone was excised and the wound closed without drainage.

The patient continued moderately septic for three days, after which the temperature gradually subsided and remained practically normal after the ninth day. Because of the fever, the wound was opened after twenty-four hours, but there was only a slight serohemorrhagic discharge from it for a short time afterward. The patient's general condition gradually improved and he was discharged with a healed wound four weeks after admission, since which time he has remained well. Tonsillectomy was done two months later.

The navicular bone, which was broken in two during removal, showed little change from the outside aside from the flattening. The cartilaginous periphery was from 2 to 3 mm. thick and not perforated. The center of ossification was irregular and broken down in part of its extent and replaced by brownish gray soft tissue. No pus was seen, but the bony area looked congested.

Microscopic examination of sections of a fragment of the navicular bone revealed evidences of both old and very recent changes. There was extensive destruction of bone and marginal destruction of cartilage along the osteocartilaginous junction at one side with filling out of the area by young connective tissue, which was necrotic in places and which surrounded and was absorbing small particles of dead bone in other places (fig. 2). In some places there was active formation of new cartilage and bony trabeculae along the inner surface of the cartilage (fig. 3). On the side opposite the area of destruction there was some old bone with extensive new bone formation in and about it which gave a greater density than normal. The cartilage was irregularly fissured and necrotic about the walls of the fissures, which in some places had been invaded by granulation tissue and in others by extravasated blood. This part of the picture was that of a destructive lesion of the bone of at least a few weeks' standing, which had resulted in necrosis and absorption of a large part of the center of ossification and of a small amount of cartilage with extensive absorption of the dead bone by fibroblastic tissue and partial repair by the formation of new bone and cartilage. In addition to this older change there was an acute inflammation through the bony center. The cancellous spaces of the new bone were extensively infiltrated with leukocytes and the blood vessels were engorged with red cells and a few leukocytes (fig. 4). There was also a moderate leukocytic infiltration of the living and necrotic fibroblastic tissue in the regions where bone had been destroyed.

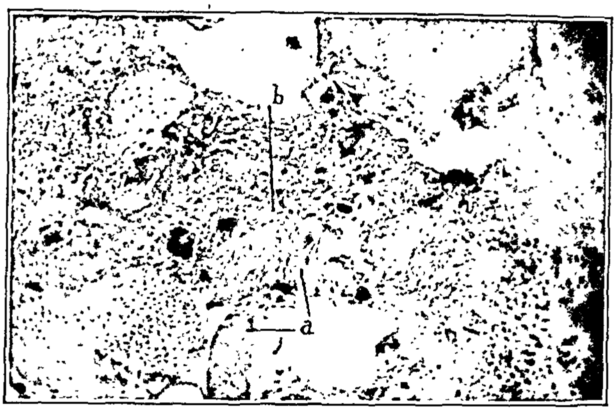

Fig. 2 (case 1).—Junction of cartilage and bone showing necrosis and absorption of bone (*a*) by young connective tissue containing some leukocytes, and (*b*) formation of new bone and cartilage; reduced from a photomicrograph with a magnification of 100 diameters.

Cultures were made of the bone as follows: Small chips were dropped into three tubes of Rosenow's medium (sheep's brain broth with marble) and two tubes of ascites dextrose broth. Ground material was placed in three tubes of Rosenow's medium and five tubes of ascites broth. Ground material was also implanted on five blood agar plates, two of which were left open and three covered by paraffin. The broth cultures all contained a growth of a long chain streptococcus at the end of eighteen hours except three tubes of ascites broth, which remained sterile. There was a growth of streptococcus which was more hemolytic than green-producing on all of the aerobic and anaerobic blood agar plates. Subcultures were grown from all of the positive cultures. The organism produced a small zone of complete hemolysis when grown on thin plates of blood agar, but it produced a green zone with very little hemolysis on dextrose blood agar. The blood cultures all yielded the same organism as was obtained from the bone. Blood cultures taken twenty-four hours after operation remained sterile.

When the organism was grown in Dunham's peptone broth containing 1 per cent of lactose, maltose, mannite, saccharose, salicin or inulin there was no fermentation, but the addition of 10 per cent dextrose produced fermentation. The p_H, which was 7-6 at the start was reduced to 6-6 after five days of incubation.

Intracutaneous injections made twenty-four days postoperatively showed a strong reaction from 0.1 cc. of broth culture of the organism obtained from bone. *Staphylococcus aureus* produced a moderate reaction and stock *Streptococcus viridans* and Rosenow's medium produced only a faint reaction. A control skin test with the organism on another person gave a negative result.

Agglutination tests were attempted with the patient's serum, but spontaneous agglutination was so marked that the tests were unsatisfactory.

Early broth cultures killed dogs and rabbits in forty-eight hours but were nonpathogenic for guinea-pigs and mice. Later broth cultures injected into the femoral artery with talc emboli produced suppurative osteomyelitis, but no lesions in the short bones of the foot.

In this case there had been a latent lesion of the navicular bone bringing about the changes of Kohler's disease of at least a few weeks' standing. Accompanying this was an acute inflammatory change of recent date which no doubt began shortly before the onset of symptoms. The hemolyzing green-producing streptococcus that grew in the cultures undoubtedly came from the lesion and was not a contamination, as control cultures made of the surgeon's gloves, the skin and adjacent muscle remained sterile. The question is, then, whether the streptococcus was the cause of both the old and the recent lesions or whether it was a secondary invader and produced only the recent pyogenic inflammation superimposed on the picture of Kohler's disease. The evidence favors the view that the organism was there from the beginning and that a change either in virulence or in resistance was responsible for the acute condition which precipitated the symptoms shortly before operation. The original involvement probably went back to the time of the general disturbances accompanying the throat infection six weeks previously. It is impossible to say from pathologic observations whether it was an infarct due to a thrombus or embolus produced by the organism with subsequent activation and invasion of the infarcted field or whether it was a mild silent infection throughout the osseous center of the bone from the beginning. Mild localized osteomyelitis produced by a number of pyogenic organisms, including staphylococci, may remain symptomless for weeks or even months after the onset, as shown by the observations of Phemister [1] and others. The original throat infection with its complications was the type that is most frequently due to the streptococcus.

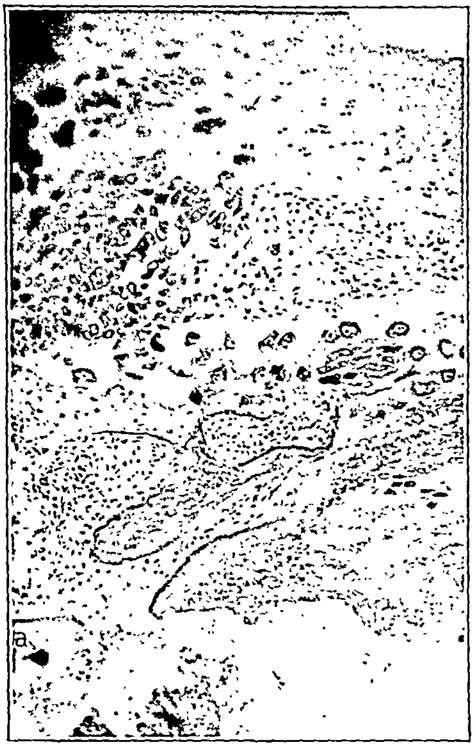

Fig. 3 (case 1).—Formation of new bone and cartilage and absorption of old necrotic bone (*a*); reduced from a photomicrograph with a magnification of 150 diameters.

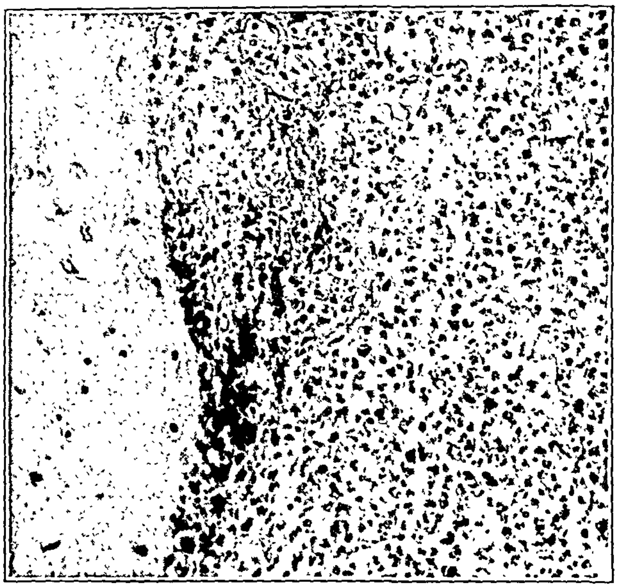

Fig. 4 (case 1).—Bone marrow showing infiltration with polymorphonuclear leukocytes; reduced from a photomicrograph with a magnification of 375 diameters.

Lecéne and Mouchet,[2] and Estor [3] have observed cases of Kohler's disease that clinically presented the picture of pyogenic infection, and Lecéne and Mouchet found pathologic evidences of inflammation in material removed at operation. However, we can find no reports of cultures of tissues made in any of the cases that have come to operation.

In the following case, a symptomless Kohler's disease was discovered accidentally in roentgenographing the bones for tuberculosis of the tibia:

Case 2.—A girl, aged 3, presented the clinical manifestations of tuberculosis of the upper cervical lymph nodes and extensive tuberculosis of the shafts of both ulnas, both humeri, the middle of the right tibia, and one metacarpal bone, all of which had developed within the previous two months. Roentgenologic examination confirmed the finding of tuberculosis of the bones. A roentgenogram of the right tibia incidentally disclosed the typical picture of Kohler's disease of the right tarsal navicular which had produced no symptoms (fig. 5).

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[1] Phemister, D. B.: Silent Foci of Localized Osteomyelitis, J. A. M. A. 82:1311-1315 (April 26) 1924; Operation for Epiphysitis of the Head of the Femur (Perthes' Disease), Arch. Surg. 2:221 (March) 1921.

[2] Lecéne R., and Mouchet, A.: Revue d'orthop. 11:105

[3] Estor, E.: Revue d'orthop. 12:365, 1924.

Subsequent examination revealed slight tenderness in the region of the bone. Biopsies were performed on an involved cervical lymph node and the foci in the right tibia and right tarsal navicular. Histologic examination of tissues from the lymph node and tibia revealed the typical picture of tuberculosis. The material obtained from the center of ossification in the navicular was broken down and microscopic examination showed necrotic bone, immature connective tissue and phagocytic tissue which in places was absorbing bone and cartilage while in others it was necrotic and hemorrhagic. No signs of tuberculosis were found histologically. Guinea-pig inoculations of the material from the navicular were negative for tuberculosis, and broth and aerobic and anaerobic blood agar cultures remained sterile. The child died at home six weeks later, presumably of the tuberculosis.

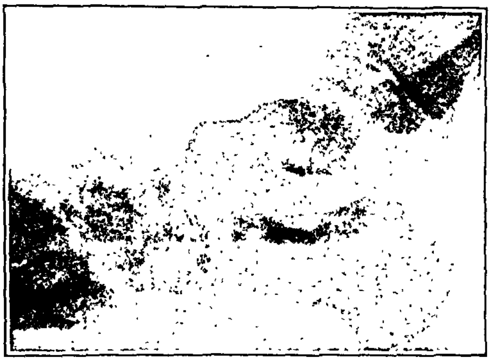

Fig. 5 (case 2).—Kohler's disease in child with multiple tuberculosis of bones and cervical lymph nodes.

In addition to emphasizing the fact that the lesion may develop silently, this case also suggests that tuberculosis may be one of the factors that brings about this group of diseases and supports Axhausen's[4] original assumption that they may be the result of a caseous tuberculous embolus which blocks the artery to the bone. Tuberculosis has been associated with it in other cases, as in the one reported by Massabuau and Marchand,[5] in which a nodule in contact with and apparently arising from a diseased navicular was excised and proved to be tuberculous by guinea-pig inoculation and histologic examination. In another of their cases, a fistula leading to the navicular developed that was assumed to be tuberculous.

LEGG-PERTHES' DISEASE

Evidence supporting the hypothesis that one of the causes of Legg-Perthes' disease may be pyogenic microorganisms is partly clinical and partly pathologic. There have been only a few reports of bacteriologic studies. *Staphylococcus aureus* grew in the cultures of patients operated on by Legg[6] and Kidner.[7] Aerobic cultures of a patient operated on by Phemister[8] remained sterile. The clinical evidence in certain cases is suggestive. The onset may be accompanied by fever, as in the case of McWhorter,[9] and the disease has developed in the course of or following an acute febrile polyarthritis, as reported by Perthes,[10] Brandes[11] and Sundt.[12] Histologic examination of lesions in the active stages shows necrosis of the bone and a marked fibroblastic and fixed tissue phagocytic reaction, absorption of the necrotic bone and necrosis of the fibroblastic tissue with usually little or no leukocytic infiltration, but sometimes with extensive extravasation of blood. In later stages there is more or less extensive regeneration of new bone and cartilage. Fairly large sequestrums have also been observed in the epiphysis which suggest infection.

Cultures were made of materials removed at operation in two cases:

Case 3.—A boy, aged 12, had slight pain and limp in both hips for a period of about one year which had developed without any apparent cause. Examination was essentially negative aside from enlarged tonsils and markedly restricted motion in both hips. A roentgenogram showed the picture of advanced Legg-Perthes' disease in both hips with flattened heads and broadened necks and a large oval area of reduced density in the juxta-epiphyseal portion of the superior and lateral portion of the left neck (fig. 6). Biopsy of the neck lesion was performed. There were several cubic centimeters of clear fluid in the hip joint. When the neck was opened, a cavity was found filled with dark fleshy tissue dotted with yellowish white necrotic specks and a few fine bony trabeculae. It was curetted. Dr. John Gordon made cultures of the material removed from the neck, on aerobic and anaerobic blood agar plates and deep shake blood agar tubes. An organism, which proved to be an alpha hemolyzing green-producing streptococcus, grew on the cultures. The wound healed by first intention but the condition of the patient was slightly febrile for two weeks and on the tenth day, when the temperature reached 100 F., a blood culture yielded the same organism as grew in cultures from the hip. Intravenous injections of the organisms in young dogs and rabbits failed to produce bone lesions.

Histologic examination of the tissues revealed extensive bone absorption with replacement by hemorrhagic and partly degenerated fibroblastic tissue. A small portion of cartilage of the head which was excised showed extensive erosion by the same type of tissue. There were areas of polymorphonuclear infiltration (fig. 7) and a good deal of extravasated blood. Small particles of bone sand were seen in the process of absorption.

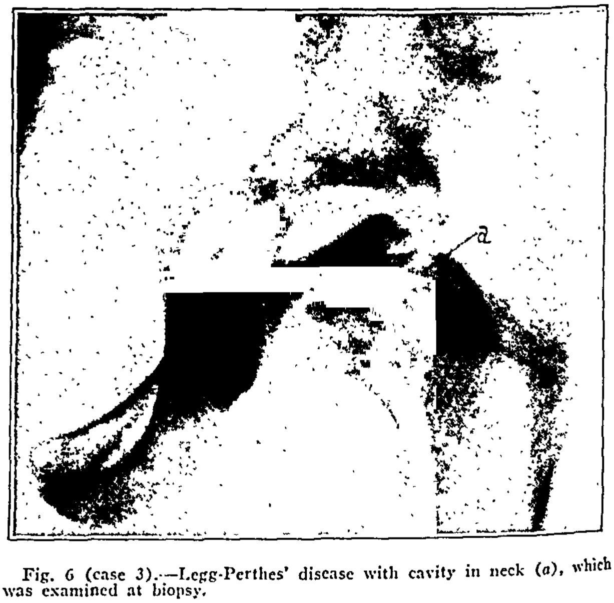

Fig. 6 (case 3).—Legg-Perthes' disease with cavity in neck (*a*), which was examined at biopsy.

The histologic picture was that of bone necrosis, fibroblastic proliferation and necrosis, hemorrhage and leukocytic infiltration. The patient gradually recovered from the symptoms, and five years later presented healed but extensively deformed heads of the femurs with moderate limitation of motion about equal in the two joints. It appears reasonable to assume that the organism grown in the cultures from the neck of the femur were contained in the tissue removed, and this is substantiated by the growth of the same organism in a blood culture made eight days postoperatively. There still remains the question as

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4. Axhausen, G.: Arch. f. klin. Chir. **129:** 26, 1924; **151:** 72, 1928.
5. Massabuau, G., and Marchand, L.: Rev. d'orthop. **16:** 32 (Jan.) 1929.
6. Legg, A. T.: Boston M. & S. J. **162:** 202, 1910.
7. Kidner, F. C.: Am. J. Orthop. Surg. **14:** 339 (June) 1916.
8. Phemister (footnote 1, first reference).
9. McWhorter, G. L.: Surg. Gynec. Obst. **38:** 632 (May) 1924.
10. Perthes, Georg: Deutsche Ztschr. f. Chir. **57:** 111, 1910.
11. Brandes, M.: Deutsche Ztschr. f. Chir. **154:** 1 (June) 1920.
12. Sundt, H.: Lancet **1:** 1153, 1921.

to whether the organisms were the cause of the disease or were secondary invaders from the blood stream.

Case 4.—A girl, aged 7, had pain in the right hip for one month beginning four and one-half months before examination. A limp developed soon after the onset of pain and has continued since. There had been no sore throat or pyrexia since the onset of the trouble. Examination gave essentially negative results except that the right hip showed marked limitation of abduction and rotation and moderate limitation of flexion. A roentgenogram showed flattening of the head and broadening of the neck of the right femur, with increased density of the lateral portion of the head (fig. 8). A biopsy was performed.

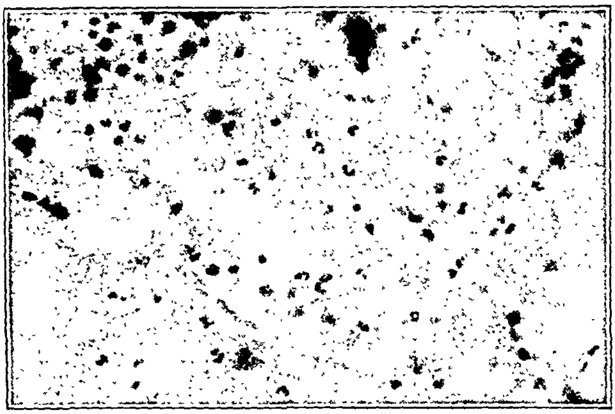

Fig. 7 (case 3).—Leukocytic infiltration of the breaking down tissues occupying cavity in neck.

On exposure of the hip there was no excess of joint fluid and no change in the synovia. The head was flat and smooth. A window of cartilage was excised from it, exposing a cavity containing dark to gray soft tissue in which were small particles of bone. Most of the center was curetted out.

Five tubes of Rosenow's sheep's brain broth and three tubes of ascites broth were inoculated with unground particles of curettings. Four Rosenow's and two ascites broth tubes were inoculated with ground tissue; four blood agar plates were smeared with ground tissue, two of which were then sealed with paraffin. There was no growth in any of the cultures after twenty-one days of incubation.

Histologically, some of the bone was broken down and the space occupied by fibroblastic tissue in which were embedded small particles of necrotic bone that were being absorbed. A few giant cells were present, but there were practically no leukocytes and there was very little cartilage or bone proliferation (fig. 9). Postoperatively, the curetted region rapidly filled with dense new bone while the small mesial portion of the head that was not curetted remained porous. Figure 11 shows the appearance seventy-six days after operation. The function of the hip was then about the same as before operation.

That one cause of necrosis of the growing femoral head may be traumatism is supported by the facts that it sometimes follows closed reduction of congenital dislocation of the hip and that in Nussbaum's experiments of cutting the epiphyseal vessels necrosis and subsequent deformity resulted.

Mau[13] has shown experimentally that continuous compression of the partially ossified vertebra of the artificially kyphosed tail of a young rat will injure the vessels running through the cartilage to the center of ossification on the concave side and result in necrosis of the bone of the epiphyses with subsequent irregularity and deformity during the period of reconstruction.

No record could be found of bacteriologic examination of tissues removed in cases of Kienbock's disease of the carpal lunatum. However, Gold[14] reports a histologic examination of one case showing the usual picture of bone necrosis as well as extensive leukocytic infiltration with the formation of a small abscess. The persistent pain and the swelling at the onset in many cases suggest a low grade infection, but sections of the excised tissue usually show extensive necrotic, absorptive, and reparative changes with no infiltrative cells. Cultures were made of the tissue removed in the following two cases:

Case 5.—A man, aged 20, had pain and stiffness in the right wrist of eight months' duration. While working as a pipe cutter he developed pain, swelling and tenderness in the right wrist. The swelling disappeared but pain and stiffness continued and were always worse after usage. Examination eight months after the onset showed limitation of motion in the wrist and tenderness over the lunatum. A roentgenogram (fig. 10) revealed slight collapse of the proximal side of the lunatum with subcortical reduction in density and slight irregular increase in density of the central and ulnar portions of the bone. A lateral view revealed flattening of the lunatum most marked dorsally. An operation was performed, which consisted of excision of the lunatum in two fragments through a dorsal incision. The wound was closed and it healed by primary union. The larger dorsal fragment was flattened and contained a small cavity filled with dark gray fleshy material. The palmar fragment consisted of dense bone. Cultures were made of small chips in eight tubes of Rosenow's sheep's brain broth and one tube of ascites broth. Fragments were ground in a closed mortar and cultures were made on two tubes of Rosenow's medium and two of ascites broth. Four blood agar plates were smeared with ground material, two of which were then coated with paraffin. There was a growth of long chain streptococcus in forty-eight hours on two Rosenow tubes, and in the ascites broth inoculated with unground material. There was a similar growth in all the cultures on blood agar plates inoculated with the ground material in from twenty-four to forty-eight hours. It was a green-producing alpha hemolyzing bile insoluble organism growing scantily in short chains. Agglutination tests with the patient's serum were unsatisfactory because of spontaneous clumping. Fermentation tests showed slight acid production after five days of growth in Dunham's peptone broth containing 1 per cent lactose, maltose, mannite, saccharose, salicin or inulin. Skin tests thirteen days postoperatively with a 0.1 cc. intradermal wheal gave, in twenty-four hours, a marked reaction with the dead bacteria obtained in cultures from the tissue, a more marked reaction from

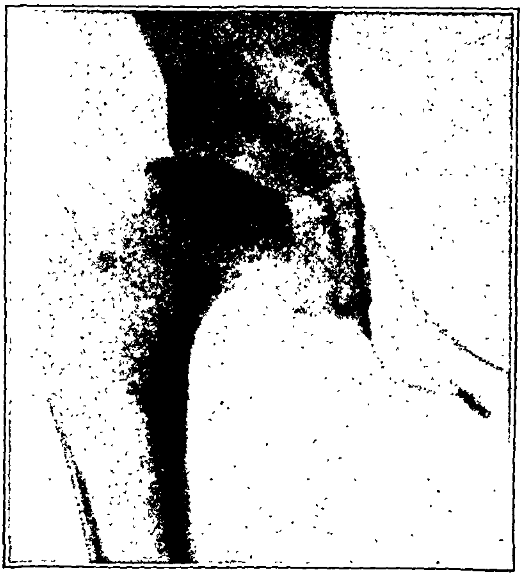

Fig. 8 (case 4).—Legg-Perthes' disease.

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13. Mau: Ztschr. f. orthop. Chir. 1, 1929.
14. Gold, cited by Axhausen, Arch. f. klin. Chir. 151: 72, 1928.

staphylococci, a slight reaction from another strain of *Streptococcus viridans,* and no reaction from Rosenow's medium.

The femoral artery in three dogs was injected with 2 cc. of a suspension of talc and bacterial sediment. One dog died in twelve days and another in twenty-two days from severe osteomyelitis of the leg and foot bones and gangrene of the soft parts. The third dog developed acute osteomyelitis of the leg and foot bones, which had passed into the chronic sclerosing stage, and streptococci were not recovered from the tibia in cultures made at necropsy eight and one-third months later.

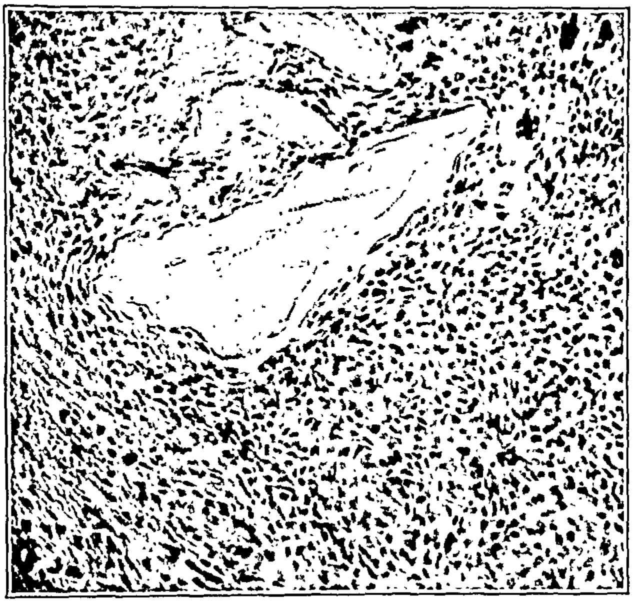

Fig. 9 (case 4).—Necrotic bone and fibroblastic and fixed tissue phagocytic reaction.

Microscopic sections of the lunatum showed central necrosis and breaking down of bone by fibroblastic tissue with considerable absorption of cartilage. There was practically no leukocytic infiltration. In some regions there was extensive regeneration of bone and cartilage. The process of transformation was one of absorption and replacement of the dead bone by fibroblastic tissue, which in turn was being replaced by new bone formed from surviving old bone rather than one of creeping substitution of the dead bone by new as occurs extensively in the organization of areas of aseptic necrosis.

Case 6.—A man, aged 20, developed pain and limitation of motion in the right wrist eleven months before admission to the hospital. The symptoms gradually increased in severity. Roentgenograms taken ten and one-half months, nine months and three months before, and at the time of examination revealed early slight increase in density and deformity with a progressive reduction in density and collapse of the semilunar bone. An operation was done, consisting of an excision of the lunatum through a dorsal incision and closure of the wound, which was followed by primary healing. The dorsal two fifths showed an extensive cavity filled with necrotic débris. The palmar portion was irregular in outline but consisted of dense trabeculated bone. There was a thin irregular layer of cartilage about the periphery. Aerobic and anaerobic cultures were made on blood agar plates and two cultures on dextrose blood broth. The tubes of dextrose blood broth showed clouding in twenty-four hours; there was a growth of long chain streptococcus in each tube. Two rabbits were each injected intravenously with 5 cc. of the broth culture. The original cultures were killed over night by a defective incubator. The rabbits showed no change and were killed at the end of forty-eight hours. A femur was removed from each animal for culture. Those from the bone marrow of one remained sterile, while in the others a green-producing alpha hemolyzing streptococcus was grown. Whether the organism growing in the cultures from the rabbit was the same as that growing in the cultures of the lunatum is very questionable.

COMMENT

The organisms grown in the cultures of these four cases were either the cause of the disease or secondary invaders or contaminants. The significance of the bacteriologic observations varies with each case. In case 1 there can be no doubt about the presence of a hemolyzing streptococcus which on certain mediums showed a decided tendency to the production of a green zone and which had produced the picture of infection in the bone. It seems logical to assume that it lodged in the bone early in the course of the throat infection, producing mild symptomless inflammation with necrosis, which was followed by an absorptive and regenerative period. Then there came an acute exacerbation of the infection with the onset of symptoms and the formation of the picture of acute osteomyelitis. It would be far-fetched to assume that the older picture of Kohler's disease was produced by a noninfectious agent and that the acute pyogenic reaction was due to a recent secondary invasion by the streptococcus. There is more room to doubt that the streptococci isolated in cases 3, 4 and 6 were the cause of the disease, as there was no acute inflammatory reaction manifested either clinically or pathologically at the time of operation and of culture of the tissues, except for a rather extensive polymorphonuclear infiltration in case 4. Secondary invasion of relatively benign bone lesions by streptococci has not been proved for other diseases. The assumption is favored somewhat by the fact that the bone marrow is a filter for and may possibly harbor for a time bacteria entering the body by way of the blood stream.

CONTROL CULTURES

The view that the organisms in these cases were obtained from cultures made from the diseased tissues is greatly strengthened by a series of controls in which apparently noninfected tissues were removed in the same operating room and cultures made from them in the same laboratory under identical conditions. Cultures were made from thirty-nine tissues in Rosenow's sheep's brain broth with marble, which affords opportunity for growth of bacteria at all degrees of oxygen tension. Of these, 14 were bone and bone marrow, 5 cartilage, 9 muscle, 6 fat and fascia, 3 synovia, 1 nerve, and 1 thyroid gland. Of 85 tubes inoculated there were growths on 13, of which 9 were staphylococcus, 2 *Bacillus subtilis,* 1 diphtheroid, and only 1 *Streptococcus viridans.* The *Streptococcus viridans* grew in cultures of the synovial lining of a hip joint in a case in which a Whitman reconstruction operation was done for ununited fracture of the neck of the femur of two months' standing. There are numerous reports of control cultures of clean wounds showing staphylococci as a contamination arising apparently from the skin, in as high a percentage of cases as it was found here.

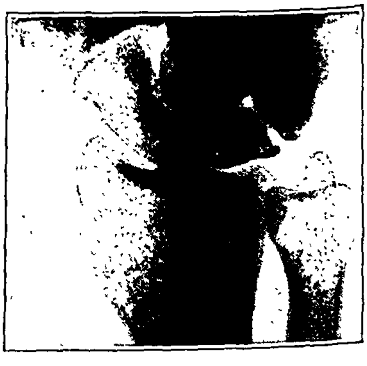

Fig. 10 (case 5).—Kienbock's disease of lunatum of eight months' standing.

The impression has been gained that streptococci are rarely contaminants of cultures made of wounds at operation. Cecil[15] reports the finding of a slightly hemolysing green-producing streptococcus in 4 per cent of blood cultures made on persons free from clinical signs of infection. The fact that the wounds in these cases healed by primary intention is no argument against the presence of streptococci, as surgical experience has shown that when they are present in low virulence they do not produce evident infection of the operative wound. This is the case after operations on chronic arthritic joints from which *Streptococcus viridans* has been grown. Streptococci are among the commonest causes of vegetations in the left side of the heart which lead to arterial embolism. Thus, *Streptococcus viridans* is the cause of subacute bacterial endocarditis which frequently leads to embolism and infarction of the viscera containing end-arteries as the spleen and kidneys, which lesions, although they are infected by the organism, do not suppurate.

Rheumatic endocarditis involving the left side of the heart may also produce embolism and infarction. While the bacteriology of rheumatic fever is still unsettled, the organism that has most frequently been isolated in the disease has been a streptococcus belonging to one of the two broad groups of *Streptococcus viridans* and anhemolytic streptococci. The recent work of Von Glahn and Pappenheimer[16] has shown that in rheumatic fever and rheumatic heart disease there is more or less extensive involvement of the blood vessels producing localized arteritis in smaller vessels. Such lesions might lead to blockage of the arteries from thickening of the wall, from thrombosis or from embolism.

There appears to have been no extensive search made for infarcts either sterile or infected with these organisms in the bones in the diseases enumerated and there have been no cases of necrosing lesions of the epiphyses and short bones associated with endocarditis or multiple arthritis of any form except those previously mentioned in connection with Legg-Perthes' disease.

In view of what is known about the pathogenicity of the less virulent form of streptococci and in view of the positive bacteriologic observations in these four cases it is not improbable that in each case the organisms were the cause either direct or indirect of the disease. If they were the direct cause, it was by lodgment of the bacteria in the bone, as in ordinary pyogenic osteomyelitis with the production of a quiet type of inflammation characterized by extensive necrosis and a fibroblastic and fixed tissue phagocytic rather than an infiltrative cellular reaction. If they were the indirect cause, they first produced either a thrombus or vegetation in the heart or arteries, which reached the bone as an embolus, or they produced a local obliterating arteritis or thrombosis within the bone itself, cutting off the blood supply and creating a bone infarct. If this was the case, then the infarcted area was invaded by the bacteria so that it would be improper to speak of the lesion, as Axhausen does, as "aseptic infarction," since it is septic infarction, the infection being of low grade. That aseptic infarction might be possible, owing to the low virulence of or the acquired immunity against the organism which produced the embolus, is shown by case 5, in which the cultures were sterile, although earlier cultures might have shown the organism.

The pathologic changes in these cases are different from those following aseptic bone necrosis due to severance of blood vessels as in bone transplants, and the femoral head in certain cases of intracapsular fracture of the neck of the femur followed by bony union of the fracture. In these reported cases with positive cultures and in case 4, the bone was largely absorbed and replaced by fibroblastic tissue and fixed tissue phagocytes which either persisted or underwent necrosis or were replaced by dense new bone formed from areas of old bone which had survived. On the other hand, in aseptic necrosis from vascular severance the dead bone is invaded by blood vessels and osteoblasts and there is simultaneous absorption and partial replacement of dead bone by new bone, a process known as creeping substitution.

It is a curious fact that while primary staphylococcus infections of the shafts are common they are very rare in the epiphysis and short bones involved in this group of diseases.

SUMMARY

1. Bacteriologic studies were made of biopsy material of two cases each of Kohler's disease of the tarsal scaphoid, Legg-Perthes' disease and Kienbock's malacia of the os lunatum. Streptococci grew in cultures of four cases and cultures of two remained sterile.
2. A streptococcus which on blood agar plates was more hemolysing than green-producing and on dextrose blood agar plates was more green-producing than hemolysing grew on cultures of one case of Kohler's disease showing acute symptoms.
3. Green-producing streptococci grew on cultures of one case of Legg-Perthes' disease and one case of Kienbock's malacia.
4. A streptococcus which was not further identified grew in cultures of one case of Kienbock's malacia.
5. One case of Kohler's disease, cultures and guinea-pig inoculations of which were negative, occurred in association with multiple osseous and lymph glandular tuberculosis.
6. One case of apparent Kohler's disease developed following traumatism.
7. These observations suggest that streptococci play an important rôle in the etiology of these diseases but that other factors may also bring them about. Whether the streptococci reach the bone in an embolus which blocks the main artery or whether they lodge there alone remains undetermined.

ABSTRACT OF DISCUSSION

Dr. Oscar L. Miller, Charlotte, N. C.: The inquiry which Dr. Phemister keeps up on this and other allied subjects is most interesting. I have always had an open mind in regard to infectious or traumatic origin of the diseases he is discussing. Certainly some cases of Legg-Perthes' disease show disturbance of bone texture similar to what physicians are taught to believe is destruction by infection. It may yet be proved that the so-called aseptic necroses may have had an infectious origin. The infectious phase may be short but may destroy the blood supply to portions of the bone and then the aseptic phase ensues.

Dr. J. Albert Key, St. Louis: At present every one looks a little askance at results in which *Streptococcus viridans* is incriminated. At the same time it is known that that organism, among others, is capable of creating a low grade lesion in bone which may later subside and become sterile. Consequently, sterile cultures from these lesions do not mean that they were not originally bacterial, nor do sterile cultures mean that bacteria are not present, because the right culture medium may not be available for the particular organism. There is another possibility. Dr. I. A. Kendall tells me that he is able to attenuate organisms to a point at which they will be alive and produce toxin but have lost the power of reproduction. Several years ago Dr. Phemister reported recovering *Streptococcus viridans* from bone cysts. I have taken cultures in three cases and have grown low grade staphylococci in all. Two may have been contaminations. One I am sure was not a contamination, because I took smears at the operating table and in one instance I got over a hundred colonies on one blood agar plate. This is interesting in view of the recent work in which all the bone cysts are being laid to hyperactivity of the parathyroids. In the cases which Dr. Phemister presented the fact must be considered that two of them look like metastatic abscesses; that is, the patient had casual streptococci in the blood stream which landed on the head of the femur or scaphoid and caused disease. If the etiology of these conditions is going to be settled, a lot of people must work on them to decide whether or not they are infectious, rather uniform results must be obtained, and these must come from people whose work can be credited and controlled. Osgood-Schlatter's disease of the tibial tubercle is rather common. It is quite acute at times and can be opened up and a wedge shaped piece removed and the patient can get up as soon as the wound is healed. In my experience, limited to one operative case, that greatly shortens the period of disability. In a bilateral case, I removed wedges and the boy had no further symptoms. The specimens showed low grade granulation tissue and small cysts in the cartilage. I took ten cultures from each tibial tubercle. Diphtheroid organisms grew in two of the cultures. I put these into the tibial tubercles in young rabbits and dogs, but they did not develop Osgood-Schlatter's disease.

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[15] Cecil, R. L.; Nichols, E. E., and Stainsby, W J.: Etiology of Rheumatoid Arthritis, J. A. M. A. **94:** *2090 (June 28) 1930.*

[16] Von Glahn, W. C., and Pappenheimer, A. M.: Tr A. Am. Physicians, 1928, p. 203.

Dr. C. B. Francisco, Kansas City, Mo.: I should like to say following up Dr. Key's remarks about the tibial tubercle that that offers the best group of cases for study. I have begun to study the tissue of the anterior tubercle from the cultural standpoint and hope to be able to get some information, although I doubt whether infection is the cause of any of these conditions. In regard to Dr. Phemister's case of the bilateral Koehler's disease, the first case that he showed, one always wonders, in taking a history of such a case, whether the child did not have this condition before it had the illness. That may have been responsible for these germs getting down to this location where the resistance was lower; so that one is still conning over as to whether the infection is the cause of the condition, when the infection is found, or whether the infection locates there as a result of the tissue's resistance being lowered.

Dr. D. B. Phemister, Chicago: Dr. Key referred to the fact that the micro-organisms in these conditions might be secondary invaders. This is quite true, but on the whole it is safer to explain disease processes on the basis of one factor rather than several. Osgood-Schlatter's disease belongs in this group. I have recently seen a case in which the disease was bilateral but on one side there were two areas of reduced density in the metaphysis of the upper end of the tibia that were suggestive of bone infarcts. Consequently the lesions in the tibial tubercle may have been due to the same underlying cause. *Streptococcus viridans* is an organism that makes low grade infectious processes involving the soft parts and it would be strange if the skeleton should be immune to it. The difficulty in deciding whether or not it is an etiologic factor lies in the fact that it may be a secondary invader of other lesions in the soft parts and the same may apply to bone.

USE OF IODIZED OIL IN DIAGNOSIS OF NASAL SINUS CONDITIONS

FURTHER OBSERVATIONS *

HENRY M. GOODYEAR, M.D.
CINCINNATI

Late in the year of 1925, prompted by the work of the French in the demonstration of iodized oils in the spinal column and in the ventricles of the brain, I made my first roentgenograms with 40 per cent iodized poppy-seed oil (lipiodol) injected into the antrums. A study of thirty-five cases of various sinuses injected (except ethmoids) were reported[1] with lantern slides in March, 1926, before the Cincinnati Academy of Medicine. In the same month Fraser[2] reported a similar series in southern Michigan.

During the following month Proetz[3] read a paper before this section at Dallas on displacement and the use of iodized oils and in May, 1926, MacCready[4] presented a paper on the use of iodized poppy-seed oil in the antrums. These constituted the first recorded papers read in this country devoted to the use of iodized oils in nasal sinuses.

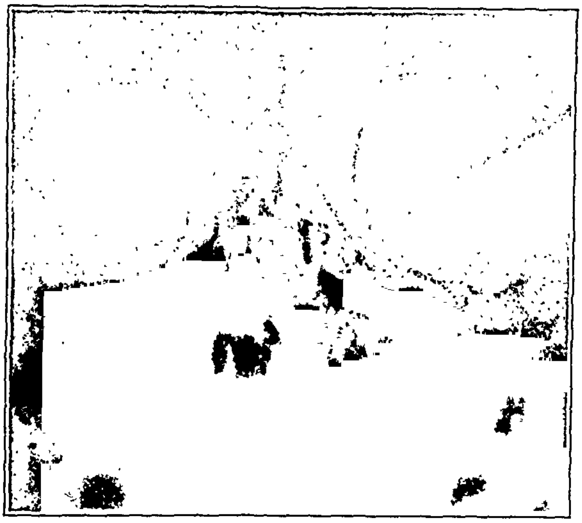

Fig. 1.—A patient, aged 43, had had bronchial cough for two years; no history of any nasal disturbance; transillumination, right; dark; 3 cc. of iodized poppy-seed oil 13 per cent retained. At operation a thick cystic membrane was completely removed; cough disappeared six weeks later.

The value of iodized poppy-seed oil in diagnosing nasal sinus conditions was quickly realized and today, in a matter of four years, its use is more or less familiar to every one in the practice of rhinology, thus marking the progress of a new and important step in sinus diagnosis.

It was thirty-three years ago (1897) that Scheir first diagnosed pus in the nasal sinus by radiography and confirmed the diagnosis by irrigation. Further work by such men as Pfahler, Coakley, Mosher and Caldwell established the fundamentals and it appeared that every antrum could be diagnosed by roentgenograms. These observations soon proved to be inaccurate. However, their work marked a new era in the diagnosis of sinus conditions, and now another step has been taken beyond the simple roentgenogram.

The use of stereoscopic views is also increasing and their importance, with or without opaque oils, is watched with interest.

Today in the search for the focus of infection in chronic bronchial coughs, unaccountable elevations of temperature, arthritis, chronic myocarditis, pyelitis, cystitis, various eye conditions, and headaches, it is not sufficient to report that the nose shows no evidence of polypi or pus. The roentgenogram may show slight changes or none and the antrum lavage may be negative. Yet these observations are neither final nor sufficient.

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* Read before the Section on Laryngology, Otology and Rhinology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

[1] Goodyear, H. M.: Iodipin in Diagnosis of Nasal Sinus Conditions, Arch. Otolaryng. **4**: 223-227 (Sept.) 1926.

[2] Fraser, R. H.: Iodized Oil (Lipiodol) in Oto-Laryngological Diagnosis; Opaque Injection Study of Thirty-Five Maxillary Sinuses, J. Michigan M. Soc. **25**: 270-274 (June) 1926.

[3] Proetz, A. W.: Displacement Irrigation of Nasal Sinuses: A New Procedure in Diagnosis and Conservative Treatment, Arch. Otolaryng. **4**: 1-13 (July) 1926.

[4] MacCready, P. B.: Iodized Oil as Aid in Diagnosis of Chronic Sinusitis and of Maxillary Cysts, Boston M. & S. J. **195**: 464-467 (Sept. 2) 1926.

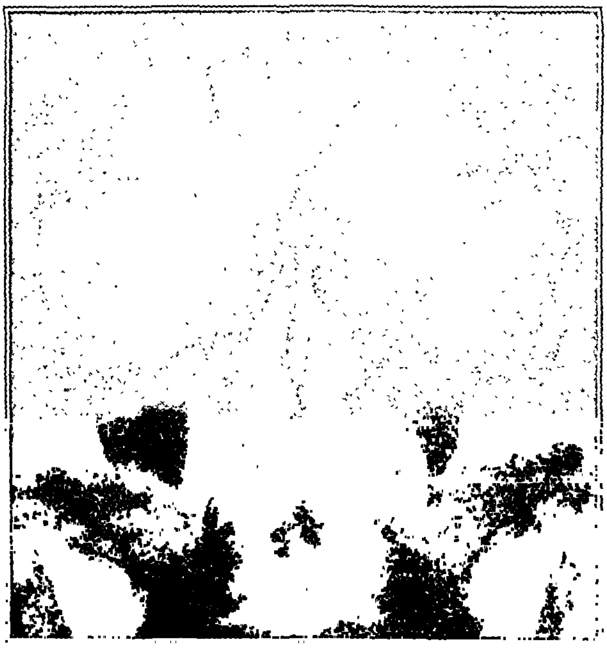

Fig. 2.—Marked filling defect on both sides in a patient who complained of intermittent arthritis and postnasal dripping. Plainly a case for radical operation.

Too many important cases show a haziness in roentgenograms and a negative lavage yet with opaque oils a definite filling defect is found which proves on operation to be a cystic membrane often dotted with small abscesses in its walls. It is these patients especially, suffering from some undetermined source of infection, that may be relieved by operation or saved from an unnecessary exploration of the sinuses (fig. 1). The type of operation may also be more accurately determined. If there is a generalized marked thickening of the membrane of the sinus involved, a radical operation would be chosen (fig. 2), whereas a filling defect confined to the floor of an antrum might yield readily to an intranasal window resection and curettement of the sinus floor.

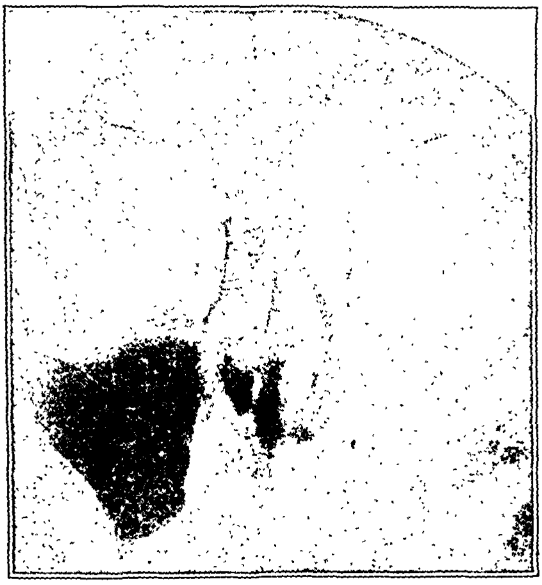

Fig. 3.—The roentgenogram was taken in the nose-chin position. The oil has extended from the antrum to the ethmoid area and a small amount shows in the frontal sinus. To be compared with figure 4.

My experience of almost routine use of opaque oils when roentgenograms have been indicated during the past four years has convinced me that the greatest practical value of opaque oils is in determining the condition of the antrums. And I believe that the future increasing use of the oils, except in very special cases, will be largely confined to the maxillary sinuses.

My reasons for the foregoing conclusions are these:

1. The antrum, because of its dependent position and relation to the teeth, is more frequently infected than any other sinus.

2. The filling of the antrum is easier to do and less difficult to read on the roentgenogram.

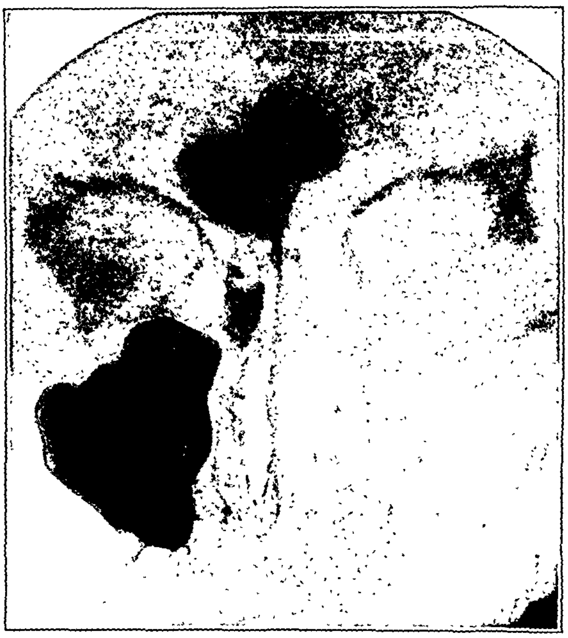

Fig. 4.—Same patient as in figure 3, approximately two minutes later in nose-forehead position. The rapid migration of oil to the frontal sinus between exposures should be noted. Pus must extend rapidly from the antrums to the ethmoids and frontals. This probably accounts for some of the frontal pain accompanying an acute infection of the antrum.

3. Contrary to the general teachings, ethmoid and frontal sinus infections are probably more commonly secondary to an infection of the antrum than the reverse; thus one is more often determining the primary source. Roentgenograms of the course of the oil leaving the antrum rather suggest this conclusion. With the head in the recumbent position it may be only a matter of one or two minutes from the time the oil leaves the antrum till it enters the ethmoid area and frontal sinus (figs. 3 and 4).

With these pictures in mind it is not difficult to imagine what must happen when a patient lies down at night with the antrum filled with pus. One may also thus account for some of the frontal pain that so frequently accompanies an acute antrum infection.

4. The frontal sinuses, because of their position and drainage, less frequently require surgical intervention

and more readily show pathologic changes on roentgen examination, with possibly the exception of mucoceles, than any other sinuses. Thus it is only in obscure cases in which surgical intervention is contemplated that opaque oils are indicated for further diagnosis.

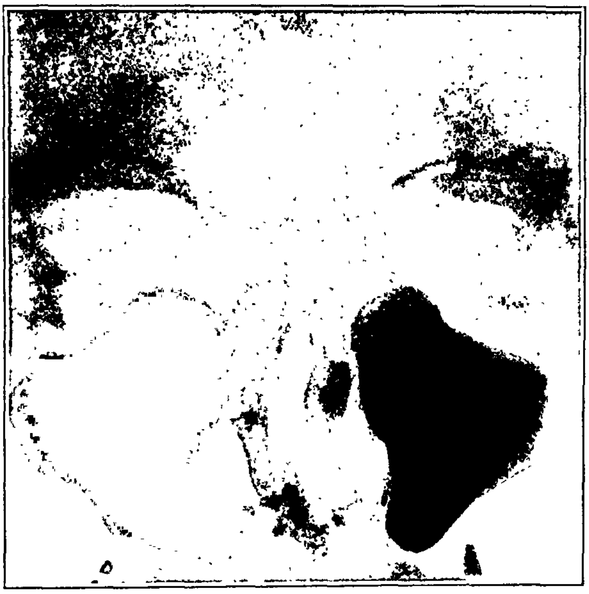

Fig. 5.—Iodized poppy-seed oil diluted 2 to 1 with heavy liquid petrolatum. The extremely heavy oil makes filling above the level of the ostium possible. Dry cotton is immediately packed in the middle meatuses and the patient sent two floors away for roentgen examination.

5. The sphenoids, which may be rather satisfactorily filled by the direct or displacement method, do not come up so often for diagnosis. Their condition can also be more nearly determined by the use of the nasopharyngoscope and by passing an applicator directly into the sinus, or even by enlarging the ostium for direct examination. Opaque oils here find their greatest value in determining the position and extent of the cavity.

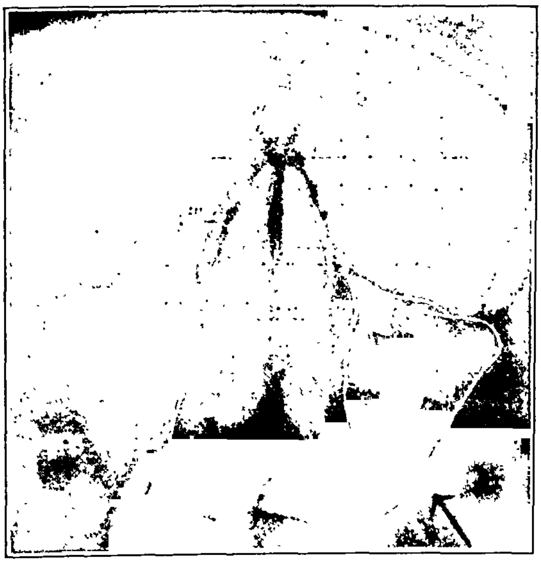

Fig. 6.—Prominent filling defect in a man, aged 48, one week after an acute coryza, with no pus on irrigation. Iodized oil was immediately injected. Two weeks later only the slightest thickening could be detected.

6. The ethmoids, which have been so beautifully demonstrated by Dr. Proetz with a displacement filling, offer a number of technical difficulties which have discouraged many workers. Too often, it is found that no oil enters the ethmoid cells at all or enters only one cell, yet these cells cannot be condemned on these observations. Moreover, as Dr. Proetz has stated, the exact angulation must be maintained at the seventy-two hour reading as was used for the primary roentgenograms, thus offering a source of considerable error.

TYPE OF OIL USED

1. Briefly, iodized poppy-seed oil, 40 per cent, diluted with two parts of heavy liquid petrolatum, has given most satisfactory results. In this dilution it will cast a shadow equal to or greater than that of full strength brominized sesame oil.

2. Brominized sesame oil, full strength, is less viscous and undoubtedly has its advantage in displacement and insufflation methods, and in patients sensitive to iodine.

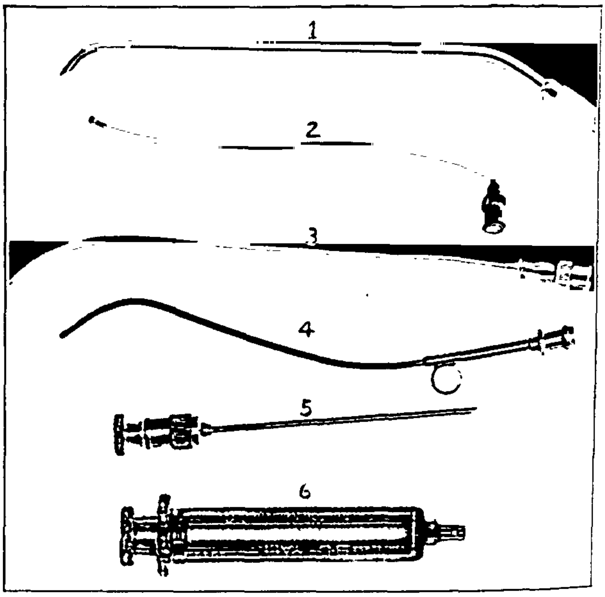

Fig. 7.—Instruments used with Luer fittings: (1) sharp cannula for anterior wall of the sphenoid sinus; (2) silver cannula for frontal with right angle Luer tip; (3) silver cannula for filling through mouth of sphenoid sinus; (4) steel cannula, 16 gage, for filling antrum through the middle meatus; (5) straight 17 gage needle for use in the inferior meatus, and (6) syringe.

3. Iodized rape-seed oil is a new American product which mixes readily with oil and casts an excellent shadow in a 50 per cent dilution.[5]

Iodism can practically be disregarded in the use of iodized oils in the foregoing dilutions. If the patient should be particularly sensitive to iodine the sinuses may be irrigated or suction used to remove the oil after roentgenography.

Iodized poppy-seed oil diluted with heavy liquid petrolatum offers a viscosity which is an advantage in antrum and sphenoid injections as it is slow in leaving the sinus, thus permitting fillings even above the normal ostium (fig. 5).

I do not practice irrigation prior to oil injections. However, it may be done as the water is displaced by the heavy oil, if done immediately after irrigation. If one waits twenty-four hours the lavage may produce some swelling of the sinus membrane, which would displace the oil. For this reason I try never to use iodized oil within a week or preferably ten days after an irrigation.

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[5] It has not yet been found acceptable by the Council on Pharmacy and Chemistry.

Acute nasal infections may produce an acute swelling of the sinus membranes (fig. 6), as has also been demonstrated by Dr. Proetz in allergic reactions.

When possible, the antrums are filled through the normal ostium by means of a double curved 16 gage steel cannula (4, fig. 7). As this method is impossible in a number of cases a straight 17 gage needle (5, fig. 7) is used high in the inferior meatus. The small gage of the cannula and needle prevents the dripping of oil when the syringe is refilled. Any syringe of less than 5 cc. capacity is rather unsatisfactory.

While filling, the number of cubic centimeters is counted to determine the volume of the sinus. If an antrum holds only from 3 to 5 cc., one can be reasonably sure that there is something in the antrum that is taking the space that would ordinarily be occupied by the oil. On the other hand, if an antrum holds from 14 to 20 cc. and even 30 cc., as occurred in one of my recent cases (fig. 8), then one can be rather certain that the antrum must be a fairly normal one to hold so much fluid (fig. 9).

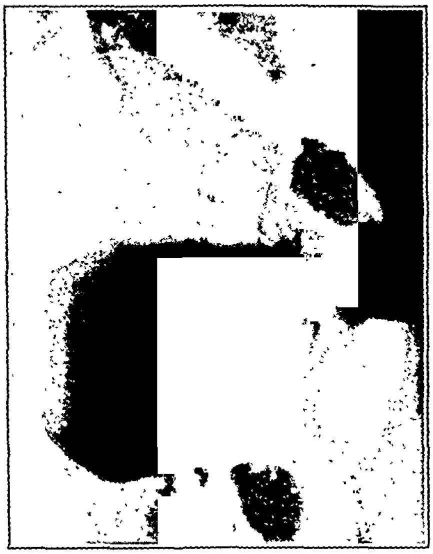

Fig. 8.—Side view of unusually large antrum in a male patient; capacity, 30 cc.

If a water solution is being used at a primary irrigation, I make it a practice to put the first of the solution in with a syringe and record the volume. Whether the antrum holds 3 cc. or 20 cc. is often an important diagnostic aid and may help to decide the course of further treatment or roentgen examination.

For direct filling of the frontal sinuses a small silver cannula with a Luer tip bent at right angles (2, fig. 7) is inserted. The patient is then placed in the knee-chest (fig. 10) or marked forward position (fig. 11) and the oil injected in one of these positions (fig. 12). Most frontal sinuses coming up for injection are obscure cases in which an anterior ethmoid or intranasal frontal operation has already been done. This greatly facilitates the insertion of the cannula.

When sinuses have been radically opened and require further study, the cavities may be packed with a thin strip of gauze soaked in full strength iodized poppyseed oil.

For the sphenoids, only one side should be done at a time to prevent overlapping shadows. Both antrums, however, may be injected at the same time as the anteroposterior views will usually show any defect and the lateral views, although overlapping, can be read.

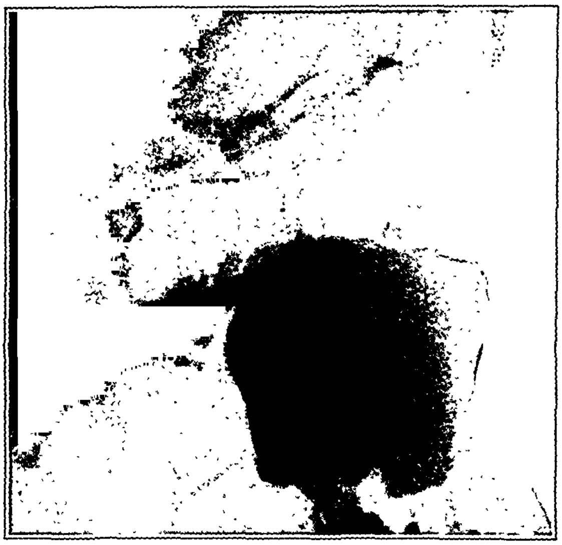

Fig. 9.—Side view of antrum in a male patient with history of a chronic bronchial cough; capacity, 24 cc. Both antrums held 24 cc. and did not show filling defects.

I have been experimenting with iodized poppy-seed oil (40 per cent), in cases of atrophic rhinitis. Everyone knows that iodine is not only a fair deodorant but seems to be rather effective in relieving dryness of the mucous membranes. Its combination with oil seems to lessen the disagreeable crusting.

The antrums are filled at intervals of one or two weeks with the iodized oil, which drains slowly into the nose. In some cases oil is evident on lavage two weeks after its instillation.

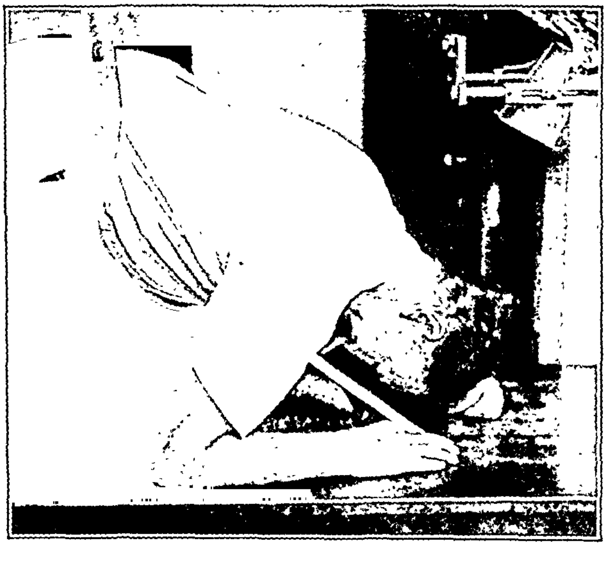

Fig. 10—Knee-chest position cannula (2, fig. 7) is first inserted and oil is injected through the right angle tip The x-ray plate is next to the forehead. In this position gravity prevents the oil from leaving the frontal sinus.

It is yet too early to comment on its real value in this troublesome disease.

CONCLUSIONS

1. The use of opaque or iodized oils is an important step beyond the simple roentgenogram.
2. Iodized oils can be used as a routine in the antrums, with little additional effort, and whenever roentgenograms are indicated.
3. Their use in other sinuses may be confined to obscure cases in which surgical intervention is contemplated.

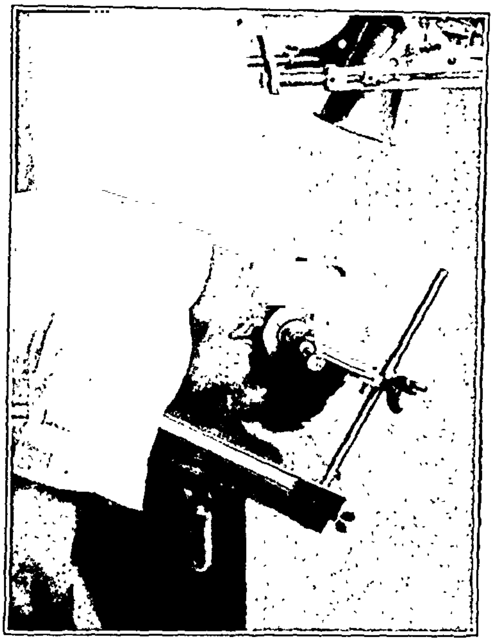

Fig. 11.—Patient sitting on a high stool with head bent well forward; filling as noted under figure 10.

4. For direct instillations, heavy petrolatum is used for dilutions to increase the viscosity.
5. Iodized poppy-seed oil, 40 per cent, diluted with two parts of heavy petrolatum, or iodized rape-seed oil diluted 50 per cent, and brominized sesame oil full strength constitute the opaque mediums of choice.
6. Iodized oils should be used immediately after irrigation or not at all for from seven to ten days, as swelling of the sinus membrane may follow within twelve to twenty-four hours after any irrigation.
7. Swelling of the sinus membranes may occur following an acute rhinitis, necessitating the delay of roentgen examination.
8. If water is being used as a primary irrigation, the first of the solution should be put in with a syringe and the volume recorded. Whether the antrum holds 3 cc. or 20 cc. is often an important diagnostic aid.
9. Frontal sinuses may be filled with the patient in the knee-chest position.
10. Sinuses previously opened may be studied by packing with a thin strip of gauze soaked in full strength iodized poppy-seed oil before roentgen examination.
11. Sphenoids should be injected on one side at a time to prevent overlapping shadows.
12. The two antrums may be injected at one time.
13. In atrophic rhinitis the antrums may be filled with full strength iodized poppy-seed oil, which seems to have a beneficial effect.
14. The use of stereoscopic views, with or without opaque oils, seems to offer some advantages.

559 Doctors' Building.

ABSTRACT OF DISCUSSION

Dr. Robert H. Fraser, Battle Creek, Mich.: While the author does not report on any examinations with the displacement or suffusion method, he has contributed greatly to the success of the injection method. I have made 1,200 observations, including 200 suffusions, and at present am making more suffusions of the anterior series in the prone position than injections. The advantages are the absence of intranasal manipulations of any kind. Regarding the incidence and importance of maxillary sinus disease as compared with ethmoidal disease, observers will differ. Chronic suppurative sinus cases are frequent in some practices, but in mine the mixed and hyperplastic sinus cases, involving many sinuses, with suppuration in perhaps some of them, are *the* problem and develop need for iodized oil. Hirsch's idea that the ethmoid is less commonly involved than the maxillary in the latter type of disease is not verified by American experience. In the majority of cases the maxillary sinus involvement comes late following ethmoid trouble, and the latter must receive attention along with the maxillary. The child with ethmoiditis should not be allowed to develop thickening in an antrum before many constitutional aids to recovery are applied. What membranes will swell and how much, as, for example, due to irrigation, is most interesting of all because more light is needed here. A thick membrane is not healthy. Traumatic swelling is about 3 mm. I have never seen a swelling in a really normal sinus due to a saline or an oil. Swelling due to allergy is more. Swelling due to transient bacterial infection is not great unless it is accompanied by chemical deficiency resulting in vasodilatation. Past disease, however, may leave fibrous membrane unable to swell even in response to trauma. If the sinus mucoperiosteum has been greatly swollen in the past, from the catarrhal type of disease of Hirsch and Zuckerhandl (hyperplastic, mixed), it can swell rapidly and to a high degree. A rapid swelling of 7 or 8 mm. means definitely that there is hyperplastic nasal disease in the constitutional tendency. A chart of the variations should be made and standardized. The history comes first, however, but must be studied in the light of an appreciation of the many oddities of these diseases and their constitutional connections.

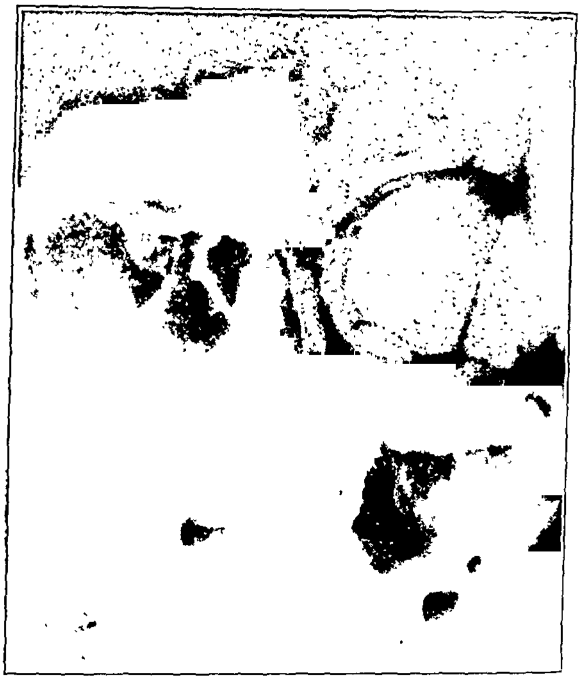

Fig. 12.—Chronically infected frontal sinus filled while patient was in the knee-chest position (fig. 10).

Dr. Samuel Iglauer, Cincinnati: I should like to mention one point in particular, and that is that not infrequently I have been disappointed after taking these pictures and opening the antrum in not finding what I had expected. At first I was inclined to believe that when I saw a filling defect in the antrum there must be a polyp or cyst present; but on operating several days later, on more than one occasion I found a practically normal mucosa or one slightly edematous. I think Dr. Proetz, who unfortunately is not here, has explained this phenomenon. He has found in a certain number of allergic patients that when he filled the antrum, or attempted to do so, during an attack of vasomotor rhinitis, he would get a filling defect, and if he waited a week or two and filled the same antrum it was of normal size and contour. I think that factor must be borne in mind, and one must be sure that one is not dealing with an allergic patient. I am sure Dr. Goodyear is to be congratulated on some new ideas that he has introduced. One is packing the middle meatus to prevent overflow into the nose; and the second is his method of filling the frontal sinus. I do not quite agree that he can explain the pathology of ethmoiditis as secondary to the maxillary infection. I feel that the pus would not flow from the antrum into the ethmoids because I do not believe the secretion would enter the ethmoids if they contained air, and the whole theory of Dr. Proetz's method is to exhaust the air from the ethmoids in order to enable him to fill the ethmoids with iodized oil.

DR. HENRY M. GOODYEAR, Cincinnati: I am glad Dr. Fraser has been using iodized oil in the ethmoids. It is rather easy to put oil into the antrum, and if the indications are such that one feels that roentgenograms of the patient's head should be made, it is not much work to insert oil into the antrum, and at least two sinuses have been ruled out to begin with.

SUPRARENAL CORTICAL INSUFFICIENCY AND CYTOTOXIC CONTRACTION OF THE SUPRARENALS [*]

OTTO SAPHIR, M.D.
AND
HERBERT F. BINSWANGER, M.D.
CHICAGO

A disease of the suprarenals exists which is even rarer than tuberculosis of the suprarenals and may cause a clinical syndrome closely resembling Addison's disease. This disease is most commonly spoken of as atrophy of the suprarenal glands.[1] Brenner[2] calls it atrophy of the cortex; Roessle,[3] inflammatory atrophy. The use of such terms as "essential adrenal insufficiency"[4] signifies that the nature of this disease is not fully understood. In reviewing the literature, one gains the impression that there are apparently two entirely different diseases of the suprarenals leading to end stages which, on superficial examination at least, are confusing. Kovacs[5] and more recently Omelskyj[6] have differentiated strictly between changes purely inflammatory in nature and primary degenerative changes leading to necrosis and disappearance of the cortical cells. The inflammatory lesions of the suprarenals involve both the cortex and the medulla and are often brought about by tuberculosis. But other nonspecific inflammations or thrombosis of the suprarenal vein may lead to similar pictures. The term "locally contracted suprarenals" (oertliche Schrumpfnebennieren) is used to denote such changes, implying that the contraction is due to local causes and is not brought about by a systemic disease acting on the suprarenals. Since these changes, however, are always inflammatory in origin, the term "inflammatory contracted suprarenals" is perhaps less open to misinterpretations than the term "locally contracted suprarenals." Clinically such a case might present itself as Addison's disease provided that both medulla and cortex are markedly destroyed.

When primary degenerative changes occur, these involve the cortical parenchyma only and lead to necrosis of cortical cells. This necrosis is accompanied by a lymphatic infiltration but without apparent scar formation. Since the cortex alone is affected in such cases, they do not give the clinical picture of the classic Addison's disease but should (according to Kovacs and Omelskyj) be classified as suprarenal cortical insufficiency clinically, while the term "cytotoxic contraction of the suprarenals" is used for the pathologic lesions. Two cases of this type are presented here, on which a distinction in the nomenclature and nature of this disease will be based.

CASE 1.—*Clinical Examination.*—A woman, aged 42, came to the hospital complaining of transitory headache for many years which progressively grew worse and became more frequent. During the last six months she had noticed that the color of the skin had changed to a brownish yellow tint. She further complained of intense nervousness, which first manifested itself about five months previously. For the preceding five weeks she had suffered from nausea and loss of appetite. Over a period of six months she had lost 9 pounds (4 Kg.). The physical examination was essentially negative. No neurologic lesions could be found. There was a moderate secondary anemia. During the first seventeen days of her stay in the hospital the most outstanding clinical symptoms were belching, nausea, frequent vomiting, headaches and poor appetite. Fourteen days before the patient died a gradually increasing weakness was noticed. At that time an incontinence of the urinary bladder developed. A few days before death the patient was irrational at intervals. The weakness became much more pronounced. The accompanying table is offered to show the various blood pressure readings.

Blood Pressure Readings in Case 1

Date	Blood Pressure	Date	Blood Pressure	Date	Blood Pressure	Date	Blood Pressure
9- 4	106/78	9- 4	94/70	9- 4	92/66	9-17	82/54
9-17	78/54	9-21	82/60	9-21	92/64	9-21	92/68
9-22	94/68	9-23	84/64	9-25	92/78	9-26	98/68
9-27	82/64	9-27*	104/70	9-28	94/70	10-1	90/70
10-3	84/60	10-4	84/63	10-5	106/78	10-6†	74/56

* After injection of epinephrine.
† Shortly before death.

The blood pressure varied from 74 systolic and 56 diastolic shortly before death to 106 systolic and 78 diastolic; the majority of readings were above 90 systolic. A chemical examination of the blood which was made during the first week of the hospitalization of the patient revealed 60 mg. of dextrose per hundred cubic centimeters and a nonprotein nitrogen content of 40 mg. The basal metabolic rate was—8.2. Six weeks after admission the patient relapsed into coma and died. The clinical diagnosis was Addison's disease.

Pathologic Examination.—The autopsy was performed about two hours after death. The body was well developed but poorly nourished. The skin had a brownish, bronzelike appearance. The pigmentation was most marked about the abdomen, back, buttocks and thighs. The lymph nodes throughout the body were enlarged. They were soft in consistency and showed on cut section simple hyperplasia The serous cavities presented no abnormalities The lungs were the seat of a moderate emphysema. There were a few consolidated portions throughout both bases. The heart was small and weighed 220 Gm. The liver, kidneys and spleen were essentially normal. The gastro-intestinal tract showed no changes. The brain was anemic, but neither gross nor histologic lesions were demonstrable. Both ovaries were of about normal size. On section they offered a few small cystic spaces containing clear, amber fluid. Tubes and uterus were normal. The thyroid was somewhat smaller than normal, of firm consistency, and showed a smooth surface. On cut section many minute colloid granules were seen throughout. The parathyroids appeared normal. The thymus could not be found. It was replaced by fat tissue. The hypophysis was normal in size and shape. There were no signs of inflammation or tumor. The pineal body showed a few calcified granules; otherwise there were no changes. Both suprarenals were very small but of about normal consistency. The left suprarenal weighed 2 Gm. The thickest portion measured 2 mm. in diameter. The capsule was thin and gray. Grossly, no intact cortical tissue was recognizable. The capsule seemed to enclose only the medulla. A few places showed on cut section bright yellow dots and streaks indicating remnants of cortical tissue. The right suprarenal weighed 3 Gm., the thickest portion measuring about 3 mm. in diameter. The cut section showed a yellowish, interrupted circle barely visible between the capsule and the medulla. The medulla of both suprarenals was reddish gray but no gross changes were demonstrable. No accessory suprarenals were found.

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[*] From the departments of pathology and of medicine of the Michael Reese Hospital.

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2. Brenner, O.: Addison's Disease with Atrophy of the Cortex of the Suprarenals, Quart. J Med **22:** 121 (Oct.) 1928
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4. Medlar, E. M.: A Report of Two Cases of Essential Adrenal Insufficiency (Addison's Disease), Am. J. Path **3:** 135 (March) 1927
5. Kovacs, W.: Zur Nebennierenpathologie, Beitr. z. path. Anat u z. allg. Path. **79:** 213 (Feb. 15) 1928.
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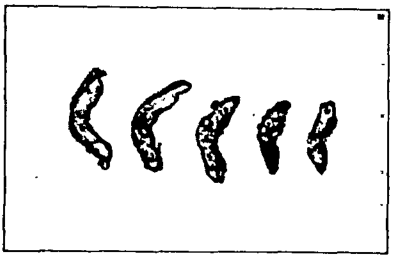
Fig. 1 (case 1).—The left suprarenal, natural size.

Histologic Examination.—Both suprarenals were cut into twelve blocks; ten blocks were preserved in a diluted "solution of formaldehyde-U. S. P." (1:10), and two in alcohol. Hematoxylin-eosin sections of the left suprarenal showed in some of the fields the capsule and medulla without any recognizable cortex. Some of the sections revealed a few very large cortical cells with a light stained cytoplasm and an eccentrically situated vesicular nucleus. Some of these cells were twice or three times as large as normal cortical cells. The cells were separated by a lymphocytic infiltration and a few stroma fibers consisting mainly of walls of small capillaries. Other fields offered only one or two large cortical cells, while others again showed several of them arranged into small groups. In some of these groups the cells assumed the form of small cords. These groups seemed regenerated islets of cortical tissue. None of the sections, however, showed the arrangement into the typical three different layers of the normal cortex. Some of the cells contained a varying amount of a yellowish pigment, while others did not show any trace of pigmentation. Most of them were the seat of a marked cloudy swelling and vacuolar degeneration. The boundaries of many cells appeared very indistinct. Some cells showed no nuclear staining. A small amount of connective tissue was found throughout the cortex combined with a lymphocytic infiltration, but there was no actual scar formation. However, it is more likely that the stroma merely appeared denser because of the loss of the parenchyma and because of the fact that the blood capillaries were drawn closer together. Many distended blood vessels were seen. The medulla appeared smaller than normal and showed a few lymphocytes scattered throughout but otherwise no changes.

Sections that were stained according to van Gieson's method showed many connective tissue fibers throughout the capsule, while the cortex contained only a moderate number of fibers. With the aid of an elastic tissue stain (Orcein), the differentiation between cortex and medulla could easily be made out, the latter containing a network of many elastic fibers. The presence of elastic fibers in the normal medulla was especially emphasized by Kovacs. In frozen sections, which were stained with sudan III, many fat globules were demonstrable throughout the cortical cells. Unfortunately the suprarenals were not hardened in chromic formaldehyde immediately. The chromic reaction, therefore, did not give very good results. The affinity of the medullary cells to basic stains, however, was easily demonstrable.

The right suprarenal showed practically the same changes. There were more cortical elements present in the form of regenerated islets surrounded by a lymphocytic infiltration. But most of these cells were of foamy cytoplasm and apparently degenerated. A few fields showed, in addition to lymphocytes, blood corpuscles within the tissue. The medulla was of the same appearance as that of the left suprarenal.

Sections of the thyroid presented many atrophic follicles. An abundant amount of lymphocytes was found throughout the slides. Sections of the lymph nodes showed a pronounced simple hyperplasia. The remainder of the organs showed no histologic changes of note.

Summarizing the gross and microscopic observations, we have described a case in which there was a marked diminution in the size of the suprarenal glands caused by an almost complete absence of the cortical structures with a relatively well preserved medulla. Aside from this, the only other changes noted were a generalized hyperplasia of the lymphatic apparatus and a moderate degree of atrophy of the thyroid gland. The histologic examination of the suprarenals revealed as the main lesion an almost complete disappearance of the cortical parenchyma, while the supporting stroma and blood vessels remained unchanged. There was no scar tissue nor any other evidence of chronic inflammatory changes. The lesions were found bilaterally. Some regeneration of the cortical cells was evident. These regenerated cells were larger than normal but did not show the characteristic arrangement into the three different layers found in normal suprarenals. These regenerating cells also seemed damaged, as indicated by the marked cloudy swelling and vacuolar degeneration. Whatever had caused the changes resulted in a specific and selected destruction of the cortical cells.

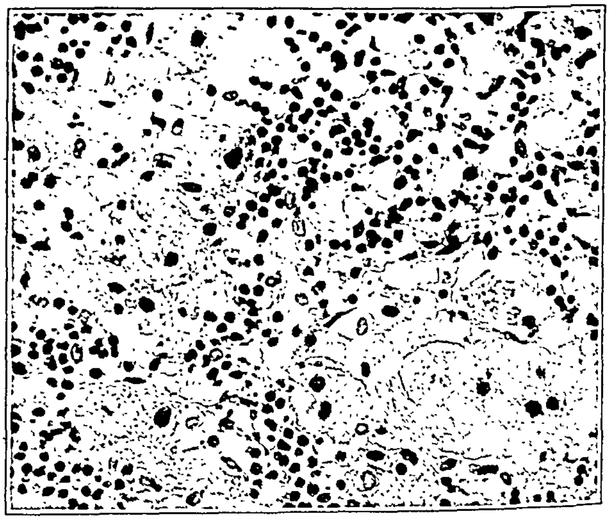
Fig. 2 (case 1).—Cortex of suprarenal: remnants of large regenerated cortical cells; lymphocytic infiltration without new formation of connective tissue: iron hematoxylin-eosin preparation; × 260.

Kovacs believes that the cortical cells are destroyed by a specific toxin, a cytotoxin in his opinion, whose nature is obscure but which may be liberated by abnormal metabolism rather than an infectious disease. The toxin is carried to the suprarenals by the blood stream, leading to mandatory involvement of both suprarenals. The progressive nature of this disease, which is shown by the degenerative remnants of regenerated cortical cells and by the final death of the patient, indicates that the cytotoxin is liberated either continuously or at intervals over an appreciable period of time. At present it is not known under what pathologic conditions such cytotoxins are formed.

The bilateral involvement of the suprarenals in this case, the selected destruction of the cortex combined with apparently normal medulla, and the absence of scar formation in the suprarenals fulfill the requirements of Kovacs, and the case, therefore, falls in the classification of cytotoxic contraction of the suprarenals.

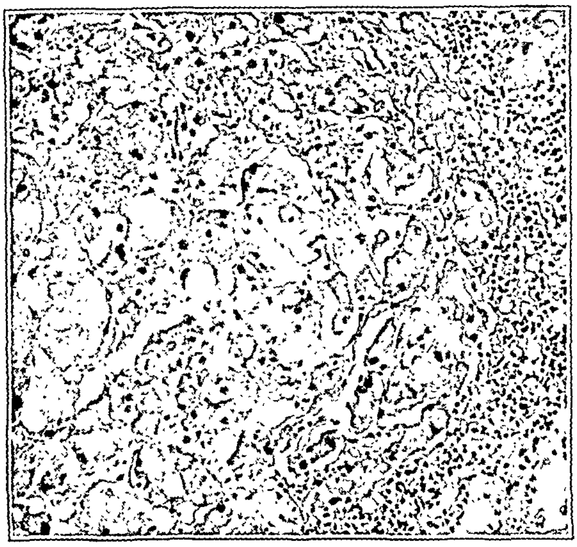

Fig. 3 (case 1).—Cortex of suprarenal: groups of degenerated cortical cells without the characteristic arrangement; iron hematoxylin-eosin preparation; × 120

Marine[7] has raised the question whether the changes of the suprarenal cortex of these cases are similar to the ones found in the thyroid in exophthalmic goiter. It might be possible, in his opinion, that these changes signify a state of exhaustion of the suprarenal cortex which must have been preceded by a state of overactivity.

Clinically, the patient presented some features that were characteristic of Addison's disease; namely, the bronze skin and gastro-intestinal disturbances. The asthenia, so characteristic of Addison's disease, developed late, apparently during the hospitalization of the patient but was not obtained in the anamnesis. The blood pressure, even though low, yet reaching 106 systolic, 78 diastolic, was not quite low enough to be typical of Addison's disease. Kovacs and Omelskyj emphasize that in clinical cases of Addison's disease both cortex and medulla are involved. They classify their cases as insufficiency of the suprarenal cortex in preference to Addison's disease because the characteristic low blood pressure and asthenia were not present. It is a question whether our case could not, for the same reasons, be classified clinically as cortical insufficiency of the suprarenals in contradistinction to Addison's disease. At the present time this question cannot be settled. Cases such as the one reported are rare and many of them have an insufficient clinical history and few blood pressure readings, which makes it difficult to analyze them. Even in Kovacs' case detailed clinical observations are lacking, and only one blood pressure determination is recorded.

Animal experiments[8] showed that the cortex of the suprarenal is indispensable to life while the medulla can be destroyed without apparent harm to the animal. Rogoff and Dominguez[9] have shown that after bilateral suprarenalectomy the blood pressure is not affected. These facts make it difficult at first to understand why, as Kovacs and Omelskyj maintain, the typical Addison's disease has its pathologic equivalent in destruction of both cortex and medulla. One should, however, guard against drawing too close a parallel between an acute animal experiment and pathologic changes which are end-stages of chronic lesions, especially since the typical Addison's disease cannot as yet be produced experimentally. Only exact clinical observations combined with close correlation of the autopsy observations may make it possible in the future to distinguish clinically between cortical insufficiency of the suprarenals, which often has its pathologic equivalent in cytotoxic contraction of the suprarenal cortex, and Addison's disease. In cases, therefore, which present themselves clinically not as pure Addison's disease, and which show as the [illegible] only pigmentation and gastro-[illegible], one should at least consider the possibility of cortical suprarenal insufficiency occurring as a result of cytotoxic contraction of the suprarenals.

CASE 2.[10]—*Clinical Examination.*—A white woman, aged 36, was admitted to the hospital with the complaint of nausea and of pain on the right side. The pain came on suddenly, had persisted one day, and began to radiate all over the abdomen. The patient had had three similar attacks but none was quite as severe as the present one. She always had been well and had not suffered from gastro-intestinal disturbances or weakness.

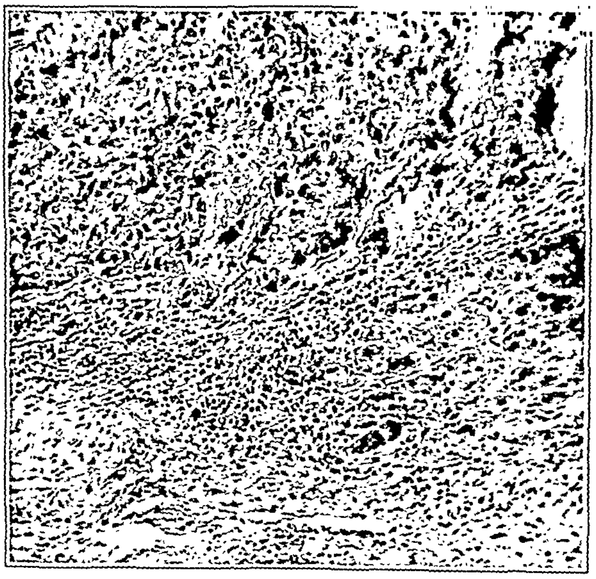

Fig. 4 (case 2).—Cortex and medulla: small groups of old cortical cells, lymphocytic infiltration throughout the cortex, and apparent normal medulla; iron hematoxylin-eosin preparation; × 120.

The physical examination revealed a peculiar bronze color of the skin which, as the patient stated, had been present for some time. She could not state exactly how long ago the pigmentation developed. The only important clinical observation was a tenderness in the right lower quadrant with some rigidity. The blood pressure reading on admission was 110 systolic and 60 diastolic. The clinical diagnosis was appendicitis. An appendectomy was performed the same day, with the use of ethylene as an anesthetic. The operation was uneventful. The appendix was small and adherent to the broad ligament. Histologically it was the seat of a chronic obliterative appendicitis.

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[7] Marine, David: Personal communication to the authors.

[8] Stewart, G. N.: The Adrenal Glands, Arch. Int. Med. 43: 733 (June) 1929.

[9] Rogoff, J. M., and Dominguez, R.: Effect of Double Adrenalectomy on Systolic Blood Pressure of Nonanesthetized Rabbit, J. Metabolic Research. 6: 141, 1924.

[10] We are indebted to Dr. Carl Henry Davis of Milwaukee and to Dr. William Thalhimer for the data in this case.

Two days after operation the patient became stuporous and lethargic and voided only a small amount of urine. Four days after the operation, she began to talk irrationally, lapsed into unconsciousness and died shortly afterward.

Pathologic Examination.—The body was poorly nourished but well developed. The bronze color was noted throughout the skin, especially on the face. The field of operation showed no acute inflammatory changes. There was no evidence of peritonitis. The heart and lungs were normal. The visceral organs appeared free from pathologic changes. The lymph nodes throughout the body were enlarged and soft in consistency. On cut section they showed a simple hyperplasia. Neither suprarenal, at first, could be found. An extensive search, however, revealed a small mass of tissue in both retroperitoneal regions above the kidneys, still showing the shape of suprarenals. No accessory suprarenals could be found.

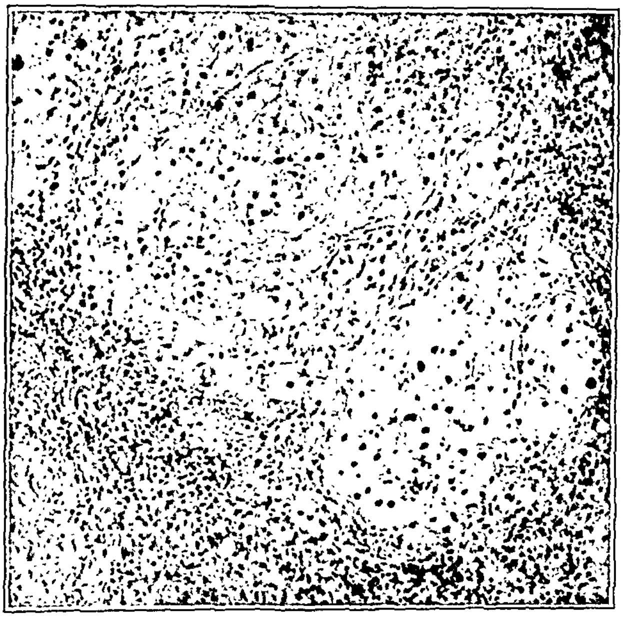

Fig. 5 (case 2).—Cortex and medulla: large regenerated islets of cortical cells; iron hematoxylin-eosin preparation; × 120.

The histologic examination of the small mass of tissue found above the kidneys revealed suprarenal structures. Hematoxylin-eosin preparations showed throughout the cortex large nodular areas consisting of an apparent new formation of cortical cells. These cells were very large and showed in part small cordlike structures and in part no particular arrangement. Their cytoplasm was markedly granular in appearance. Some of the cells contained large vacuoles throughout the cytoplasm while others had varying amounts of a brownish pigment. Many of the cells were faintly stained, showing the cellular outlines indistinctly, but the coherence of the cells could still be made out. All of the nodular areas were close together with hardly any dividing stroma. Only occasionally cells were found in groups of four or five with a moderate amount of stroma between them. Some of the sections showed a few lymphocytes and large phagocytic cells. There was no connective tissue or any hyaline material or scar tissue. The normal arrangement of cortical cells in three different layers could not be made out. The medulla was normal in size. The medullary cells were large and apparently unchanged. Few lymphocytes were seen in the outer portions of the medulla close to the cortex. The chromophil reaction could not be obtained because the tissue was hardened in formaldehyde. The affinity of the medullary cells to basic stains, however, was clearly demonstrable. Outside of small blood vessels, throughout the cortex and medulla, a moderate number of red blood cells were seen. The fat stain (sudan III) showed a large amount of lipoids in the cortical cells. The capsule was fibrosed but showed only an inconspicuous lymphocytic infiltration.

The second case showed the disappearance of the normal suprarenal cortex with marked regeneration of the cortical cells assuming the forms of nodules; but most of the cells were the seat of marked degenerative lesions and necrosis. The medulla apparently was not affected. Throughout the cortex a few lymphocytes were found. Following Kovacs' classification, we must consider the changes as typical of cytotoxic contraction of the suprarenals.

If we compare the microcopic observations in the two cases it is evident that the changes of both suprarenals are essentially identical. In the first case, however, the changes were much more marked. Many fields showed only a few remnants of cortical cells which were separated from one another by a stroma showing dilated vessels and a lymphocytic infiltration. There was evidence of regeneration but many fields revealed only remnants of regenerated islets of cortical cells. The second case showed much more cortical tissue. There were many more large regenerated islets of cortical cells, many of which still showed the cell outlines clearly and were connected with other cells. The histologic picture of both suprarenals explains why the first case with far advanced lesions in the suprarenal cortex gave a clinical picture which could be interpreted as chronic insufficiency of the suprarenal cortex and why the second case with less severe lesions in the cortex showed, up to a few days before death, no clinical symptoms of suprarenal insufficiency with the exception of pigmentation.

Clinically, case 2 is interesting because of the sudden death shortly after appendectomy in an apparently healthy person. The autopsy revealed that death was due to the changes in the suprarenals. The only clinical observation that could be brought into correlation to these lesions was the pigmentation of the patient. No accurate data as to the duration of the pigmentation were obtained. Furthermore, no attempts were made to ask specifically for signs of asthenia. Nausea, of which the patient complained, was referred clinically to inflammatory changes of the appendix. It was pointed out in the anamnesis that the nausea developed only one day before the patient was admitted to the hospital. The blood pressure just before the appendectomy was 110 systolic and 60 diastolic. It is, however, fair to assume that neither asthenia nor gastro-intestinal disturbances, if at all present, were marked because otherwise they would have been easily obtained in the case history. The marked regeneration of the cortex and the surviving old cortical and medullary cells prevented the appearance of clinical signs of suprarenal insufficiency, with the exception of the skin pigmentation. It seems, however, as if following the operation the remnants of cortical tissue became insufficient, as indicated by the marked cloudy swelling and vacuolar degeneration of the cortical cells.

According to Marañon, "the prognosis and duration of Addison's disease depends on the appearance of the pigmentation. If the latter is an early symptom, the duration is long and the prognosis seems relatively

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[11] Marañon, G.: L'insuffisance surrénale primitive et secondaire, Rev. franç. d'endocrinol. 6: 277 (Aug.) 1928.

good. Our case showed pigmentation as the only clinical evidence of lesions of the suprarenals. If one may assume, from the histologic picture, that eventually there would have developed other symptoms of Addison's disease or of chronic cortical insufficiency, then the early pigmentation would point to a long duration and good prognosis.

Cases of sudden death following operation which show at the autopsy table marked destruction of the suprarenals are rare but do occur. Hornowsky[12] reported two cases falling in this group. One of the patients dying shortly on removal of carcinomatous nodes in the inguinal region showed both suprarenals consisting almost entirely of scar tissue. The patient had never shown symptoms of Addison's disease. Zimmerman[13] published reports of two cases of sudden death following cesarean operation. Both cases showed at the autopsy a marked atrophy of the suprarenal medulla. Whether or not the cortex was also involved in Zimmerman's cases cannot be stated because of the complete lack of histologic description and diagnosis. Huebschmann[14] described a patient who was apparently in perfect health and who suddenly became unconscious and died the same day. At the autopsy a brownish color of the skin and buccal membranes was noted. Both suprarenals were much smaller than normal and had a granular surface. Histologically they showed marked atrophy with some inflammatory changes. Marchand[15] reported a case of sudden death after an operation for perityphlitis. The patient, who had had no clinical symptoms of Addison's disease, showed at autopsy a complete caseation of both suprarenals. Omelskyj also mentions that marked changes of the suprarenals might remain clinically silent until they give rise to a sudden illness leading to death a few days afterward.

The death of our patient, which must be interpreted clinically as the result of suprarenal insufficiency, was apparently brought about by the severe degeneration of the remaining cortical cells. Whether the demand for the secretion of the suprarenal cortical cells after the operation was too great or whether the operation itself was responsible for the sudden loss of function of the suprarenal cortical cells cannot be decided. In the final analysis, we believed that the death was due to acute cortical insufficiency. It was pointed out previously that the cloudy swelling and vacuolar degeneration was very pronounced throughout the cortical cells. Not taking into consideration the physiologic importance of the cortex but merely considering the histologic changes, we believe that this case should be classified clinically as one of acute cortical insufficiency of the suprarenals which pathologically showed changes characteristic of early cytotoxic contraction of the suprarenals.

SUMMARY

A clinical and pathological study of two cases of suprarenal cortical insufficiency was made. One case, clinically diagnosed as Addison's disease, showed changes which histologically are similar to the ones found in cytotoxic contraction of the suprarenals (Kovacs). An analysis of this case revealed that the blood pressure reached 106 systolic and 78 diastolic and that the asthenia developed only shortly before the patient died. A possible clinical differentiation between Addison's disease and cortical insufficiency of the suprarenals may be made. The second patient, who died shortly after an appendectomy, showed similar lesions but much less marked. There were severe degenerative changes throughout regenerated cortical cells. Clinically, the only symptom that could be referred to suprarenal lesions was a diffuse pigmentation of long duration. The sudden death of the patient was attributed to an acute incompetence of the regenerated cortical cells following the operation.

SPECIAL PSYCHIATRIC PROBLEMS IN CHILDHOOD *

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First of all I should like to restate the topic for discussion as "To whom does the health of childhood belong?" The separation of mental health and physical health is a residual of that dark age in the history of medicine when a human organism was divided quite neatly into mind and body. Mind and soul were considered to be the concern of teacher and clergy; body—or everything below the eyebrows—belonged to the physician. It has taken the medical profession decades to realize that a human being functions not in segments of mind and body but as a finely integrated organism; that every instinct and its accompanying emotion affects every cell in the body, making blood circulate faster or slower, gastric juice increase or decrease, glands of internal secretion function or dysfunction. Internal medicine now makes the statement that at least 40 per cent of men and women who consult physicians for a wealth of distressing bodily sensations are victims of poor health associated with unwholesome states of mind. How do they get into this condition? The answer is in every instance an individual one based not on the precipitating factor of a romantic misadventure or a financial loss but on lifelong poor habits of meeting strains—emotional, intellectual, physiologic. In the study and treatment of this large percentage of adults in poor states of health, the internist has been driven inevitably back to the childhood story of these patients, asking himself again and again whether a better start in life would have averted the grown-up discomfort. By virtue of the same spirit of intelligent inquiry into the hygienic possibilities of the first ten years of life the profession is conducting an increasingly successful campaign against bony deformities, cardiac disease, tuberculosis and syphilis. Hygiene, then, as the science of health must concern itself with every factor contributing to the growth, development and personal welfare of a human being. Mental hygiene is an aspect of hygiene that takes a genetic interest in the behavior of an individual, dealing with assets and liabilities of life which may or may not develop into pathologic behavior. With this formulation of mental hygiene it would seem that the mental health of childhood belongs to no one group of society or branch of departmental knowledge. The mental health of childhood should be the active concern and intelligent interest of physician, teacher, parent, psychologist, clergyman, psychiatrist, social worker, public health nurse, and every other constructive force of the social organization that comes in contact with the welfare of children.

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[12] Hornowsky, J.: Zwei Todesfalle infolge Nebenniereninsuffizienz, Virchows Arch. f. path. Anat. **215**: 270, 1914.

[13] Zimmerman, R.: Ueber ploetzliche Todesfaelle bei Atrophie des Nebennierenmarkes, Monatschr. f. Geburtsh. u. Gynak. **56**: 259, 1921.

[14] Huebschmann: Beitrage zur pathologischen Anatomie der Nebennieren, Beitr. z. path. Anat. u. z. allg. Path. **69**: 352, 1921.

[15] Marchand, in discussion on Luksch: Die Veraenderungen der Kaninchennebenniere nach Diphterietoxin Injection, Verhandl. d. deutsch. path. Gesellsch. **14**: 136, 1910.

* Read before the Section on Diseases of Children a
Annual Session of the American Medical Association, 1930.

MENTAL HEALTH OF CHILDHOOD

This view of mental hygiene and its place in the field of child health is, I realize, quite at variance with ideas about the subject held by all sorts of professional people. Dr. Crothers has kindly put at my disposal letters from some 250 pediatricians, psychiatrists and psychologists of note in different parts of this country to whom he propounded the question being discussed today. In reading these replies one is reminded of a remark of Margaret Fuller, that famous New England iconoclast of the seventies, who once said in a lucid moment, "I don't know where I'm going. Follow me." The usual psychologist's idea of the mental health of childhood has been admirably set forth by Dr. Anderson:

> Mental hygiene lies predominately in the field of education rather than in the field of either psychology or medicine since the primary purpose of education is to prepare individuals to meet the problems of life. While education should receive all the assistance it can from both psychology and psychiatry, nevertheless it is the discipline which has been set up by society for the training of individuals and which has both the prestige and the historical background for work in this field. It does not seem to me that society can or will establish a separate discipline independent of the schools for the training of the general run of individuals. Psychiatry will continue to deal with abnormal individuals. In psychiatry, in contrast with psychology, the primary emphasis is placed upon the treatment and care of the individual who deviates to a marked degree from his fellow men. Any science considering abnormal phenomena is very largely based upon a study of individual cases or variations from the normal rather than upon basic or common trends. . . . The control of mental hygiene is not now in medical hands, nor will it ever be . . . . To say that physicians are to assume complete control of the mental hygiene field is to say that physicians are going to control society. It seems to me that the interests of the physician in the field should be scientific rather than propagandistic, and that his purpose should be to formulate correct data and principles rather than to embark on a general mission of the propagation of a faith.

Evidently in the mind of the psychologist the mental health of the child is synonymous with the intellectual ability of the child, and education is considered as an intellectual discipline. The failure of the child to measure up to this discipline is considered an educational matter. As a matter of fact, the more childhood is studied in an attempt to interpret behavior rather than to judge conduct, the more convincing it is that the mind of the child is the whole expressive activity of the child. Behavior, or mind, includes not only the intellectual faculties—memory, reasoning, judgment—but a wide range of other activities—emotions, cravings, desires, instincts, composed partly of inborn tendencies and partly of habits of thinking and feeling and acting acquired from training and environmental influences. The busy teacher of a crowded classroom has little time to talk with parents, and she has no ambassador to send into the home. When school nurses are in the ratio of one nurse to every 3,000 school children in cities of more than 30,000 population, teachers cannot count on the help of school nurses in interpreting the behavior problems of the classroom. Consequently the teacher is obliged to deal with the restless, irritable, explosive, stealing child as an offender rather than as a maladjusted or misfitting individual. That is, she is obliged to use in treatment the trial and error method of finding something that will stop the annoying behavior—scolding, keeping in at recess, sending home or to the principal's office. If these methods do not work, the child is apt to be called incorrigible. In other words, education as a discipline treats the offense (or delinquency), not the offender (or the delinquent). Teacher, parent, physician, psychologist, social worker and school nurse need to get into the habit of thinking of a child's misfitting or maladjustment as a symptom of a wide range of causal factors. These causal factors go far beyond the realm of education as a discipline. They go into the home with its economic strains, its social strivings, its harmonies and disharmonies of parental relationships; they go into the neighborhood and its opportunities for recreation and social contacts; they go into the office of the family physician and his associations with the intimacies of family life. Child health and its behavioristic aspects projected against such a background of matters for consideration makes it impossible, it seems to me, to think of mental hygiene as "propaganda" and "a faith," or "a separate discipline to be set up by society independent of schools to train individuals." The more frequently one thinks of behavior as an aspect of health, and health as a component of behavior, the slower one will be to divide human beings simply into normal and abnormal, consigning the latter to one sphere of departmental knowledge. It is as reasonable to claim that the physician who treats disease cannot intelligently study genetic aspects of health as to maintain that the psychiatrist's province is only that of abnormal individuals.

The pediatrician's concepts of mental hygiene as indicated by the questions sent out by Dr. Crothers seem to indicate two general views as held by what might be called the nonprogressive and the progressive group of practitioners. The former feels that it has been paying enough attention to the mental health of childhood, and that the mental hygiene movement is a passing fad with which it does not wish to have any alliance. To this group of physicians mental health of childhood concerns itself chiefly with whether the child is feebleminded. As one physician puts it, "Entirely too much fuss is being made about defective children. I've always recognized them. Nobody can cure them." Then there are the stock phrases and stock prescriptions for "nervous" children. "Wait till puberty and she'll outgrow it." "He's a nervous, high-strung boy. Take him out of school for a year or two. Don't cross him."

The progressive group of pediatricians realizes that the mental hygiene movement aims to study the behavioristic growth and development of a child in the same intelligent manner that preventive medicine is studying his nutrition and metabolism. But progressive pediatrics finds itself a bit puzzled concerning how to go about this thing, and who shall do it. It asks whether mental hygiene is an attitude of mind or a technic. If it is a technic, should another technician be added to the office staff or should the child be sent to a psychologist or psychiatrist for treatment? Is there something so complex and mysterious about the mental health of childhood that a psychiatrically intelligent physician with an honest interest in the matter could not handle it? The answering of these questions is not easy because of just such unfortunate disagreements as I have referred to as existing between authorities in the branches of science devoted to the study of behavior. Not only do psychology and psychiatry disagree as to their respective provinces in the field of behavior, but there are various schools of psychology and schools of psychiatry so insistent on featuring some one ingredient of behavior that the larger issue of the behavior problem of the individual child becomes almost obscure. Mental hygiene is not a technic with which the pediatrician can equip his office like x-rays and basal metabolism. It is an attitude of mind that takes a genetic interest in the behavior of a child, for example, with reference to its constitutional endowment (biologic and psychologic) and what will be apt to give native endowment its best chance of development.

Such an attitude of mind calls for several prerequisites: First, it necessitates willingness on the part of the physician to have time and patience to talk with mothers and often fathers about the setting of home and school in which any given behavior problem occurs. From time immemorial physicians have done this, and even in this period of busy specialization some of the best mental hygiene I know of is daily practiced by pediatricians. Second, granted an honest desire to understand the patient better, is needed a knowledge of some of the practical causes of individual childhood misfitting that result in varying degrees of poor mental health beginning in childhood and going on through adolescence, frequently culminating in all sorts of nervous instabilities in maturity.

COMMON CAUSES OF CHILDHOOD MISFITTING

Among the strains commonly responsible for so-called badness and nervousness in children are the following:

1. Discrepancy between the child's intellectual ability to grasp and correlate the demands of home environment and school program with what home and school expect of a child of his age is a common cause of childhood misfitting. It can be discovered by the frequent and wise use of the Binet-Simon intelligence test and educational group tests that estimate whether a child is able to do the grade work to which he is assigned. The day is past when parent, teacher or physician can say offhand to a lagging boy or girl, "You could do it if you only tried hard enough." Psychologic science can estimate with a reasonable degree of certainty whether this child can or cannot accomplish what is expected of him. Unfortunately, our educational discipline does not adequately weed these children out and provide programs suitable for their limitations. These mentally retarded boys and girls get into junior high school and even further, and go to pieces trying to do sixth, seventh and eighth grade work with the intellectual equipment of 9 or 10 years. Now, a child who is forced to follow a program beyond his intellectual ability is bound to react with "nerves" or truancy, or stealing, just as a foot shod with an ill fitting shoe develops pathologic conditions of skin and joints. If a child's body is healthy the average medical mind leaves school placement to education, forgetting that educational mismanagement can occur in even the best of private schools. It is this 25 per cent of mentally retarded school children who, growing to adolescence and maturity, clog the wheels of dispensaries, juvenile courts, correctional institutions, and social agencies dealing with chronic dependence.

2. A child suffering from physical conditions seriously affecting nutrition, locomotion, eyesight, hearing or speech is recognized by all as behavioristically handicapped, but here again are mental hygiene problems that involve something more than making allowances for the disability. There is the tendency to progressive sensitiveness, the feeling of discouragement over tedious processes of treatment and inadequate opportunities for schooling, and always the increasing realization that he must be limited in what he can do for a livelihood and must be content to accept any remuneration for services that society sees fit to offer him. Psychology teaches that the physically handicapped person is poor reconstructive material because he is lazy and has no ambition. How much of it is due to the way he is treated?

3. A poor start in habit training during preschool years is another common cause of so-called bad and nervous children. No other member of society has such a good chance to start young mothers right in one of the most important features of mental health as does the physician. Regularity of food and sleep and excretory habits is of great importance, but equally so is the establishment of good habits of managing the emotions of fear and anger, the desire to be the center of attention, the cry to get what one wants. How often one hears the mother of a primary school child say, "You see I've always let him have his own way, because my doctor said he was a temperamental child and we must not cross him." She may be misrepresenting the doctor, and yet one meets not infrequently a colleague who has told the parents of an intelligent 13-year-old boy who has been stealing since he was 8 years old that they must not make an attempt to correct the habit because John Jr. is suffering from a polyglandular disturbance of which the Johns Hopkins pediatrics department fails to discover a trace. Or one meets another colleague bringing a tantrum-throwing, breath-holding girl of 5 with the story that this is the one mysterious case in which he has not been able to cure these characteristics by supplying sufficient calcium to the organism. Nursery schools, habit clinics and prekindergartens throughout the country are doing their best to give parents education in starting infancy and early childhood with a wholesome set of habits of emotional control. It does seem a pity that their influence is counteracted by many a physician who considers all this "the bunk."

4. Another source of individual childhood strain is to be found in unwholesome social conditions (economic strains, overcrowded living arrangements, broken homes, parental disharmonies, discrepancy between parental ambitions and child capacities). Here are matters that one accepts in theory, and yet fails so often properly to evaluate in given child cases. Getting at these facts takes time and patience and tactful questioning of child and mother. When facts are elicited, their treatment lies in how much parents are able to grasp and how much they are willing to accept. It is one thing to get them to carry out medical treatment of sun baths and diet; it is another to get them to modify their attitudes toward each other and toward life for the sake of a child who is suffering from such things.

A 12-year-old girl in whom the physical examination was persistently negative except for a marked degree of visceroptosis offers a case in illustration. She had had an appendectomy six months before and she complained of fatigue and lack of appetite. The physician advised her staying out of school for a year. Four months later she opened a telegram for her mother announcing the death of an aunt. The mother collapsed at the news; the child began to tremble and cry, and then vomiting started. Obviously there is much more to this family situation than meets the eye. The getting of this child to retain food, to gain in weight, and to get out of bed is simple compared with the treatment of the family situation to which she must return. Why should this child break down and her sister remain untouched by the domestic strain? Here is a child who has a temperamental endowment of such a nature as to predispose her to a serious break like this. She has always been quiet and contained and has never expressed an emotion of fear or like or dislike.

5. The temperamental equipment of childhood is a matter that we can all do well to study and not so often take for granted. Study of the adult breaking down nervously in later life is teaching us a great deal about childhood personalities that stand strains of life poorly and well. There is what is called the neuropathic constitution—an individual with good intellectual equipment and no disease of body, but with an organism whose nervous system seems put together the wrong way—autonomically speaking. Enuresis, night terrors, eczema, stammering, easy vomiting and tics are childhood forerunners of hay-fever, bronchial asthma, mucous colitis, angioneurotic edema of adolescence and maturity that are struggled with so unsuccessfully. Here are children who fatigue easily and yet have abundant energy. Teacher and parents tend to feature their precociousness and advise skipping grades and study in summer school for advanced credit, adding music lessons and a strenuous summer camp to a year overcharged with activity.

Another unfortunate temperamental equipment is that of the odd, quiet, seclusive, stand-offish, day-dreaming child who prefers staying by himself to playing in a group, who is always near when mother and teacher call, who takes criticism much to heart and broods over it. Previous generations cultivated these shut-in traits as ideal behavior patterns. Today we worry about them, realizing that the frank, active, out-going child who gets things out of his system has a far better chance to adapt himself to life's difficulties than his good, docile brother who never lies or steals or is impertinent to anybody.

6. An important aspect of the mental hygiene of childhood has to do with planning for energy outlets in the form of group play and well directed recreation. Society in its evaluation of attitudes toward play has gone through two periods: first, that of realizing that leisure time is a necessity for the maintenance of a healthy and well balanced life; and, second, that of recognizing the wealth of constructive educational possibilities associated with play and physical training. Year by year the physician is confronted by an increasing number of patients who break down under the strain of life. There is no big worry behind the picture of poor mental health, but in studying the individual stories of these patients one comes on lifelong inability to relax. The present age is not trying to repress the energy of childhood but to cultivate it, and in the cultivation to divert it into wholesome channels of activity. A person lives as a grown-up in a world with other persons, and his success or failure depends largely on his ability not only to get along with other people but also to enjoy group contacts.

ADEQUATE ENERGY OUTLETS FOR CHILDHOOD

It is agreed by all that "he that is slow to anger is better than the mighty, and he that ruleth his spirit is better than he that taketh a city." But it is one thing to treasure this proverb in the archives of memory; it is quite another to practice it in the traffic jams of daily experience. The boy or girl who has learned to do this on the playground will invariably put these principles into use in the business and social relationships of life. This thing is called team-work—the ability of a person to submerge his individualism for the good of the group. Power of good adjustment to life must come out of the experience of self-directed thinking, and it is this that formal education of home and school has been in the past so reluctant to permit. Sound physical education has made this its goal and watchword. By virtue of this it is coming to occupy an increasingly prominent place among the socializing institutions of the community. Ten years ago the physician and teacher struggling to plan for a mischievous, energetic half-grown boy could turn only to a barren yard, or acres of "keep off the grass." Today in the cities and in many towns every child and adolescent has a reasonable opportunity to play a game under the kindly supervising influence of men and women adequately equipped to teach fair play and the spirit of good sportsmanship.

There is another aspect of great importance in this matter of adequate energy outlets for childhood, and that is that play and recreation which satisfy serve to absorb a great deal of that restlessness and experimenting which arise from sex instinct and urges. Here is a topic of human behavior that has grown to be thought of as conduct to be judged rather than as behavior to be interpreted.

When does the sex instinct begin to show itself? For a child to evince curiosity along such lines before puberty is traditionally considered wicked, and persistent curiosity may be a sign of degeneracy. There is the matter of auto-eroticism, or self-abuse, for which parents and teachers refer small patients. From infancy on a child may drift into this practice, discovering its comforting sensations like thumb-sucking as an inducer of sleep, or stumbling on the mechanism as part of exploratory investigations conducted alone or with the help of other children. The medical advice in dealing with this matter has been far from wise and helpful. In common with parents and teachers, physicians too have been horrified, tying the child's hands, threatening to cut him with a knife, placing him in steel frames to sleep, and telling the child and his grown-up guardians that the practice is causing his body to deteriorate and will in all probability result in insanity or feeblemindedness. There is absolutely no truth in these fears. Auto-eroticism is seen openly practiced by individuals unbalanced enough to require institutional care. The same individuals are also seen spitting on the floor, and taking off their clothes and eating with their fingers. The latter behavior is recognized as a symptom of the unbalance, not a cause. In exactly the same way auto-eroticism is not a cause but a symptom, and as such it must be treated with intelligence. Do not worry about it and scold and watch the child every minute. See that he has plenty of chance to play and become thoroughly tired, and find interests more absorbing. The practice may not disappear at once or entirely, but it will greatly diminish. There is no physiologic danger connected with the habit. Havelock Ellis, a great English authority on the instinctive life, states that 98 per cent of normal adults go through an auto-erotic period from 12 to 20 years of age. Parents should take interest in the child's play. When he is small he should have toys that are suited to his level of enjoyment; more important yet, it should be remembered that it is a poor policy for any child to play alone even with the finest equipped playroom and yard with sand pile and swings. Adam grew tired of even the Garden of Eden. In like manner a child wants somebody to talk to, to argue with, to vie with in competition, to enter into his imaginative fancies. What if the neighbors' children teach him bad words and impudence, or give him contagious diseases, he cannot be desensitized to these things too early. Better chickenpox and blasphemy than a child established in habits of selfishness inevitably associated with being solitary in all his ways.

COMMENT

I have mentioned somewhat in detail a few principles that the physician should keep in mind in considering the mental health of every small patient with whom he comes in contact. Their embodiment in practice might be considered the equivalent of a psychiatrically intelligent approach to pediatrics. A well known pediatrician writing Dr. Crothers says, "The psychiatrists have simply discovered a lot of things which doctors in general have known for many years." I have no doubt that the gentleman making this statement thoroughly believes this to be true, and yet the record of floundering in the treatment of nerves which the medical profession has established for itself over a long period of years is nothing to boast of. If even a preschool child either in dispensary or in private practice is asked what he and his mother are coming for, the diagnoses and medical discussions of every physician he has visited since he was old enough to understand words can be obtained instanter. Histories of patients are complacently taken from their parents, and theories of heredity and diagnostic fears are discussed in the presence of children, and then physicians wonder why these little folk whine over food, are afraid to run and play, and must sleep in mother's room. I have heard a professor of pediatrics give an hour's clinic over a 10-year-old patient with congenital heart disease and not understand why the child developed an invalidism a year later that was out of all proportion to his organic necessities. I have known a professor of ophthalmology to tell the mother of a 12-year-old girl with congenital glaucoma that she would become totally blind at 18. The child was sitting beside the mother and heard every word he said, developing then and there the roots of a chronic and persistent insomnia that for years handicapped every activity of her life. All over the country are physicians buoying up the parents of defective and retarded children with the prophecy that feeding glandular extracts, removing tonsils and adenoids and doing circumcisions will make these children intellectually normal. If such procedures are necessary they should be carried out, but precious years for special educational training should not be sacrificed to prophecies based on wholly inadequate scientific data. In short, from a behavioristic standpoint, one could write volumes on the topic, "foci of medical infection." Psychiatrically intelligent medicine and pediatrics call for something more than common sense; they call for trained common sense.

How will one go about training psychiatrically intelligent internists, pediatricians, obstetricians, gynecologists and orthopedists? From the behavioristic side of science one must frankly admit that the profession is confronted with a confusing amount of words and theories tending to proclaim some particular field of psychology and psychiatry as the one and only method of human salvation. There is orthodox psychology which claims that a study of intelligence functioning saves one any need for attempting so-called character and personality analysis. Opposed to this is behaviorism which makes environment and training the sole determinant of mental health. And again there is the psychoanalytic school of psychiatry that overemphasizes and overadvertises repression as the black plague of the soul. Is psychometric examination the only method of approaching the personality problem? Is it necessary to scrap the facts of heredity and eugenics in order to do justice to environment and training as behavior determinants? Shall society sit by and await with patience the day when biochemistry teaches it how to "change the personality with glands?"

As much can be suffered from training without common sense as from common sense devoid of training. It seems to me that the safest guide in approaching the mental health of childhood is a good general background in the field of medicine which includes training and a practical working knowledge of the integrated mental and physical functioning of a human being. The time is coming when every medical school will follow the example of the larger medical institutions of learning and place psychobiology and psychiatry on exactly the same basis in the curriculum as physiology and internal medicine. Rotating hospital services will include periods of resident training on psychopathic wards and in psychiatric dispensaries. The physician with this background of medical school and hospital training will then be equipped not only to treat the health of the child as a whole with a feeling of reasonable security, but also to utilize and correlate a wealth of helpful contributions from the broad field of education, psychology, sociology and psychiatry.

No one group of society has an exclusive claim on the mental health of childhood. It should be the active concern and intelligent interest of every constructive force in our social organization that comes in contact with the welfare of children.

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PEDIATRICS AND CHILD PSYCHOLOGY *

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MINNEAPOLIS

In an age in which the word psychology is so widely used by so many different people in such a variety of ways, one approaches the discussion of the relation between psychology and pediatrics with some fear and trembling. This is in part due to a feeling that, when the discussion is completed, psychology may seem to be a much more prosaic endeavor than most people believe, and to hold out somewhat less hope of meeting all our unsolved problems of human relations, at least within the next generation.

To many, psychology is a word to be glibly rolled off the tongue, whenever an inexplicable fact of human action occurs or a quick and easy explanation is sought. To those who are earnestly engaged in the business of trying to formulate valid principles of human behavior and to contribute to our understanding of human nature, psychology is a term which, however hard to define, nevertheless stands for a wide discipline, within which there are many individuals of high ideals who pursue their studies with as keen a comprehension of scientific method, as honest an appreciation of the difficulties of making valid generalizations, and as well trained imaginations as those who are to be found in other of the great scientific disciplines.

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* Read before the Section on Diseases of Children at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

Unfortunately, these workers, who are slowly but surely building a science, seldom secure the ear of the public and to their regret must see their field constantly misrepresented and exploited by the charlatan and the quack in a manner not unlike that which works to the harm of scientific medicine. Furthermore, all manner of men find their way into psychology just as all manner of men find their way into medicine. Occasionally quite as much harm is done by one within the field who, transcending his scientific principles, runs off into quick and easy and, I fear, popular generalizations, as is done by those outside. But the basic structure of knowledge and technic built up by the effort of many faithful workers, which carries us forward bit by bit to a knowledge and mastery of problems and events which previously seemed quite beyond the reach of human endeavor, must not be forgotten.

At the outset, it is well to distinguish between the quest for knowledge and the application of that knowledge in a practical way to human affairs. This distinction is reflected in the use of the term science and art, the first being concerned with knowing and the second with doing. This distinction is not new to medical men, for the great teachers have consistently pointed out that medicine is an art, built on certain basic sciences, and that medicine becomes ever more scientific as it utilizes more and more the knowledge that is accumulated by sound methods and technics. The great majority of psychologists are university and college instructors who in their laboratories are pursuing the goal of knowledge and who find their material taken over into a variety of practical arts, such as education and industry. The popular idea of a psychologist pictures him as one who is very successful in his own relations with other persons and one who is quite willing to give advice on all occasions to all persons. This is far from the true picture, as the majority of psychologists are no more practitioners than are the majority of physiologists, botanists or zoologists.

It is my purpose in this paper to discuss the relation of pediatrics to child psychology. The occasion arises out of the increasing emphasis being placed on methods of child training and problems of adjustment in this age and the many demands that are made on the physician educator and scientist for information and assistance.

It is quite natural that such a demand should arise as the final capstone of campaigns to improve the health of children. During the last three decades the public has been trained to look to the physician and nurse for information on health. Having been trained to seek the advice of scientifically trained people, the public turns to those who have previously helped them for information and advice on the more complex problems of child rearing.

This shift in emphasis may be a necessary outcome of the progress of today. Because of the overwhelming insistence of physical problems and of disease in the form of specific pain and the constant reminder of death which is present for all of us, medicine arises early as an attempt on the part of society to preserve and maintain life. Since the problems of mental adjustment, although equally serious, are not so immediately insistent, the sciences and disciplines that deal with mental adjustment arise later and assume specific form much later. When children are starving or are critically ill, it avails little to talk about training problems. The first task is the relief of the starvation and illness. When the children are reasonably well fed and in tolerably good physical condition, problems of mental adjustment or training arise.

Psychology as a science appeared relatively late; well after anatomy, physiology, chemistry and physics. Psychiatry, as the branch of medicine which deals with mentally ill and abnormal individuals, arose even later. Psychology is to be looked on as the science which concerns itself with the main trends or general laws which guide and control the behavior of human beings in relationship to their physical environment and to one another. While Dr. Richards will discuss the relationship of psychiatry to pediatrics, it nevertheless may be worth while for me to point out that psychiatry, working as it does in the field of abnormal phenomena, necessarily concerns itself more with the study of individual cases or variations rather than with basic or common trends.

In a sense, every individual in the world is a practical psychologist because he is engaged in the process of adjusting himself, of meeting other people and of reacting to them, and, whether he likes it or not, must formulate principles of conduct and deductions with reference to the conduct of others. The experimental psychologist or scientific psychologist is interested in substituting for the popular psychology on which every one must react a psychology based more definitely on demonstration and verification through the tools of thought which science has developed so admirably in other fields.

In the past, psychology has been largely interested in adults. Within recent years it has become increasingly evident that the adult can be understood only in terms of the processes that have preceded adult life. A somewhat similar development is occurring in medicine, as I understand it. Just as every succeeding year demonstrates the importance of a long time or developmental view of disease as contrasted with a short time or cross-section view, so the more one studies human behavior the more important the developmental approach becomes.

Then what has psychology to offer the pediatrician? The answer to this question is not as easy as it would seem at first glance. If such a science as chemistry or physiology is considered, it becomes clear that much material has been brought together under one heading which has fairly direct bearing on many of the problems which the pediatrician faces. But there is also much in these fields which has little or no bearing.

The contribution of the basic science is composed in part of a general background of terminology, concept and understanding with which problems can be approached, and in part of a matter of specific technic which can be applied in particular situations. In the psychologic field, through the activities of many scientific workers over the years, much material has been accumulated, some of which can be looked on as background and some as specific contributions.

First of all, man exists, in a world of other individuals and is a behaving unit meeting other behaving units of a similar sort. The knowledge of how human beings react should be a part of the knowledge of every one. A child is a growing, active, developing, adjusting person meeting the demands of a complex world. It is only within the last few decades that a serious effort has been made to determine the nature of the child and the manner in which he is brought into adjustment to the world about him. An understanding of the child's native equipment, of the manner in which he learns, of the way in which he thinks, feels and reasons, should be a part of the intellectual possession of every individual who is in any way concerned with children, as parent, physician or teacher. I regret that it is necessary for me to speak in such general terms, but if one looks at a standard textbook in psychology, one finds a book of 400 or 500 pages, embodying the results of hundreds of investigations, which can be mastered only by considerable effort.

If the student of behavior wishes to go back of the elementary textbooks to the more advanced works dealing with particular phases of psychology in detail, he will find literally thousands of books and monographs available. As current sources of material, he will find some twenty scientific periodicals in the United States devoted to psychologic work and as many more published abroad. Out of this great mass of material there is slowly evolving a well integrated and basic mass of psychologic fact.

INTELLIGENCE TESTS

As to the specific contributions which psychology can make to pediatrics, I have time to mention only two in detail. Of these, the first has attracted the greatest amount of public attention and has been the basis of much discussion. I refer to the widely used intelligence tests. Much misunderstanding as to the purposes and significance of intelligence tests has arisen. This has resulted in part from the use of the general term intelligence, to describe what is in fact a measurement of a fairly specific aspect of the whole total of the individual's behavior, and in part from the widespread tendency to interpret test results as placing the child in a permanent category. While it is true that such tests have been exceedingly useful in sorting out defective and retarded individuals and in the development of special technics for the education and training of both retarded and gifted children, nevertheless there is nothing inherent in the intelligence test itself which sharply defines or characterizes the whole adjustment of the individual to his life situation.

The intelligence test has predictive value within certain limits and for certain types of life situations. Narrowly and carefully interpreted, the results are of great significance and practical use. When the results of such tests are looked on as closing an individual case rather than as a basis on which wise guidance, treatment and control can be developed, they defeat their own purposes. While the overpopularization of tests has been somewhat harmful, in the main their widespread use has contributed to the welfare of all children. New principles of education have been developed around individual differences. Society has moved from a lockstep system in which all children were treated much alike to a system in which endeavor is made to accommodate the kinds and type of instruction to the capability of the individual child.

For the pediatrician the intelligence test represents a fairly simple measurement made by a technically trained person, which will enable the physician to gain new insight into difficult cases and make possible better recommendations for the care of the child. If he expects the test to solve all the child's problems he will be disappointed, just as would be the case if he took one of his other laboratory technics built up for a special purpose and tried to solve all his problems of physical disease with it. Some acquaintance and understanding of the use of intelligence tests will also give him an insight into the wide variation that exists among children, and the necessity of approaching each child as an individual.

THE TRAINING OF YOUNG CHILDREN

The second specific contribution which the psychologist can make to the pediatrician is likely to be found in the recent attack of the psychologist on the problem of the development and training of young children. Within the past five years a number of institutes for the study of children have been established, usually with schools for young children as an integral part. In these institutes in which physician, psychologist, sociologist and educator cooperate in a wide variety of researches, much material is being accumulated that is of direct and practical significance for the problems which the pediatrician meets daily in his practice. Space does not permit my going into detail. I might mention, however, the Minnesota studies on sleep and the Toronto studies on basic habits. It is too early as yet to predict the extent of the contribution which will be made, but it is clear that any group of scientists attacking the complex problems of the young child from observation, contact and study, rather than from the armchair or an exclusively adult point of view, is of necessity bound to develop a sympathetic attitude toward the work and possibilities of pediatrics and to make contributions to the work of all those concerned with children.

In the past, entirely too much of our material on child life has been projected back from our knowledge of the adult rather than built up progressively from the actual observation and study of children. Much harm is done by the assumption that children are but adults in miniature, and that any one who knows adults necessarily knows children.

If the psychologist offers the pediatrician his material on children, he has, I think, a right to expect something in retu[illegible] That something which he expects is a sympathetic [illegible] basic principles of child life and of the modification of child behavior. Some pediatricians show an excellent knowledge built on the basis of their practical experience with hundreds of children. Others seem to be almost completely ignorant of the fact that they are handling a child rather than a disease or a particular physical condition.

HOW TO GAIN KNOWLEDGE OF CHILD PSYCHOLOGY

May I add a word about the specific procedures through which the physician and pediatrician may gain some knowledge of child psychology. First of all it seems to me that every educated person should have some contact or acquaintance with the elementary facts of human behavior as presented in the ordinary or beginning textbooks of psychology. Granted some acquaintance and general background, there should be the contact with normal or typical children which seems to be so worth while and valuable in gaining a point of view with reference to children. The establishment of well baby clinics which in many medical schools constitute a part of the training of the pediatrician constitutes a decidedly worth-while step in this direction, for here the student sees not the ill children of the wards but those with minor difficulties arising in the ordinary home environments. If to these well baby clinics there could be added limited opportunities for the observation of children in groups or at play, such as are furnished by our modern schools, particularly those for young children, I think much would be gained. It is one thing to see a child for five or ten minutes in a forced or strained situation and another thing to see children who are under no pressure or strain at their activities for a considerable period. Particularly valuable in the training of the young man entering the field would be the observation for a short period of a highly skilled teacher of young children at her work.

As the pediatrician practices, he is apt to become more and more inclined to base his generalizations and practical recommendations on briefer and briefer observations and contacts with children. This is a natural tendency, in view of the growing demands that are made on one's time. But it is a tendency that can be counteracted with some profit by taking every opportunity to see children at their ordinary life in play, school and home, both as individuals and as groups. Occasional visits to schools, trips to playgrounds, visits with families, all are of value in building up a sound view of child life. After all is said and done, what Dr. Crothers calls a wise and tolerant curiosity about mental processes and an attitude of respect toward the emotional and intellectual difficulties of the child cannot be acquired without manifold contacts with children in all aspects of their lives.

IMPORTANCE OF THE PEDIATRICIAN

Finally, I wish to point out the important position held by the pediatrician in relation to the children under his care. He sees them from time to time throughout the period of their most rapid growth; he is consulted by the parents both during emergencies and when emergencies do not exist. If he is interested in the whole adjustment of the child, he can do much in his incidental contacts with the children and with the family to further their well being with respect not only to their physical health but also to their mental health.

The manner in which the individual physician will respond to this opportunity depends to a large degree on his personal characteristics, training and interests. As the physician himself practices, he is modifying his own nervous system and is building the particular modes of responses which will later become characteristics of his whole approach. If he rushes in and rushes out paying attention only to the physical needs of the child he will soon find himself by the very nature of his work restricted to a narrow point of view. On the other hand, if he takes a sympathetic and wise interest in all phases of child life he will find not only an increased interest in all phases of his work but also a return flow from his general interest in children and their adjustment problems back to his efforts and procedures for the physical care of children. He will then become a sane and wise counselor, well equipped to give the children under his care a good start on the road to successful and happy living.

SUMMARY

I have pointed out that:

1. Despite the popular loose use of the word psychology, there is a considerable body of able scientific investigators who are gradually building up a substantial body of knowledge about human behavior.
2. As the physical health of children is improved, questions of mental health, learning and adjustment arise and more and more demand is made on the scientist and physician for information and guidance.
3. The contribution of psychology to pediatrics is both general and special. The first consists of a background of terminology, concept and understanding and the second of technic such as the intelligence test, and such specific results as may be expected from the coordinated attacks of physician, psychologist, sociologist and educator on the life of the young child, shown in the recently developed institutes for the study of children.
4. The psychologist may expect from the pediatrician in the future a sympathetic understanding of the basic principles of child life and the modes of modifying child behavior.
5. Through contact with children in school, on the playground, at home, at work and at play, *en masse* as well as individually, the forward looking pediatrician can supplement his contacts with children as patients in such a way as to become an intelligent and wise counselor on all aspects of child life.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. RICHARDS AND ANDERSON

Dr. A. H. Parmelee, Chicago: It is hard for me to understand how a pediatrician can escape a sense of responsibility in regard to the mental hygiene of his patients. Certainly not a day goes by but that some patient comes to me in whose case there are points which need some sort of psychologic interpretation. I can see, in the forces that are sending physicians into a study of this phase of child health, a definite similarity to those which sent physicians into an intensive study of infant feeding. They are being forced into it by public demand whether they wish it or not. Twenty or thirty years ago the public began to be flooded with literature, bulletins and talks about proper, well balanced diets for infants and children. Certain men began to be more or less expert in the feeding of infants and young children, but the majority of physicians found that their patients often knew more about the subject of infant feeding than they did: they asked a lot of questions which many physicians could not answer. Consequently, infant welfare societies and other public health centers for conveying feeding information were established because the public demanded it. A similar situation arises today with the great amount of interest that is being shown by the public in regard to mental health. Interest of parents in their own mental health has inspired them to take measures to protect their children from the handicaps they themselves have suffered through ignorance of mental hygiene on the part of parents, teachers and physicians. The psychiatrically minded pediatrician need not be a psychiatrist. His knowledge can only be general but should be comprehensive enough to enable him to handle the usual case and know when to send a child to a real psychiatrist. I am afraid that sometimes a child is branded as a "problem child" by being inadvisedly referred to a psychiatrist when the pediatrician should have been able to handle the case in a more simple way; just as the child who is a little bit slow in school is branded among his schoolmates by being put inadvisedly into the so-called opportunity class.

Harry J. Baker, Ph.D., Detroit: The White House Conference on Child Health Protection has a subcommittee dealing with the problem of what the schools shall do with behavior problems. The committee consists of a psychiatrist, a pediatrician, a school principal, and myself as a school psychologist. We are trying to get at the problem of what to do with the children. We have discovered in the past few years that if we study the intelligence distribution of children who are known to be behavior problems, if we can speak of them as a general class, we find that as a group they are somewhat dull or slow children, not feebleminded but slow. We have a suspicion that our school organization has not handled the psychology of slow children properly. It is one of the important challenges of education to build a curriculum suited to the mental capacities of slow children so they should at least be happy and grow up into what is considered the best that can be offered from the standpoint of school mental hygiene. From the standpoint of the practitioner and of the child, it seems necessary many times to exercise great patience to keep the child in its present school environment. From the standpoint of the teacher with a crowded room and a school administrator with many complaints coming in of malbehavior of children, it may seem desirable to segregate these children. School administrators are quite embarrassed between two rival forces in knowing what to do with this problem alone. I believe that teachers as a whole are quite sincere in wishing to do something with problem children. Many lack technical training. One of the problems of the conference is to decide what sort of program of training a teacher should have in order to understand problem cases better. I believe that at least 3 or possibly 5 per cent of all children offer serious adjustment problems in school. Part of the survey made recently shows that less than 4 per cent of the large cities of the country are really doing anything to handle this problem.

Dr. Paul J. Zentay, St. Louis: The beginning of this new era has been described as a revolution. Such a revolution is actually in process whether physicians want to accept it or not. And it is taking place in the whole field of medicine and in pediatrics in particular. It is well known that through many phases of development a stage in medical science has been reached where old conceptions must be rewritten in terms of biology and pathology of the human person. The general practitioner or the pediatrician of today has to deal with the whole human individual and has to study the problem on that basis. Dr. Gesell recently stated that pediatrics of the future has to be rewritten in terms of behavior. I think that, after listening to the symposium this morning, all feel that there is a great deal of truth in this statement. The symposium makes it evident that the problems are primarily of genetics and development. Pediatrics seems to be the only branch of medical science that is primarily interested in genetics and development. It is trying to follow up the child from the first moment of life to adulthood. This has necessarily to include studying the genetics and development of the psychic side of the child. Pediatricians are particularly in a position to promote the mental hygiene of childhood. The outstanding problems in this field have been pointed out in the symposium. The important need, in my opinion, is a more intensive research in studying child life. Physicians have to get more complete biographies that follow the child from the first moment of life until adulthood. Through them they will be able to understand more thoroughly all reactions and integrations of the child. The speakers and also the discussers have emphasized the need of more intensive training in this field. This seems to be unavoidable for pediatricians of the future. With better training, pediatricians will be in a position to apply principles of mental hygiene in infancy and preschool age, when most needed and when results are more promising, that being the stage of development when mostly pediatricians can reach the mother and the child.

Dr. Harry Stack Sullivan, Towson, Md.: From birth onward, the human individual is a social creature. The factors of principal import in his environment are social—are interpersonal relations. When the pediatrician or the psychiatrist interested in children considers a particular child, he must realize that he is dealing with the nexus of a social situation. The ultimate problems confronting them are not to be solved by anything they can do to the child as a separate entity or to the important other people considered as separate entities. In many cases the problem concerning this nexus is one that can be dissipated by the use of "enlightened common sense." Enlightened common sense consists in part of a body of superstitions, some of which are conspicuous ingredients of so-called mental hygiene. Dr. Anderson is one of the workers who are accumulating facts with which the superstitions now included in common sense as applied to child guidance and correction can finally be replaced. One of the greatest steps in mental hygiene is the institution of regular feeding and sleeping habits in infancy. Considered from the standpoint of personality genesis and evolution, the principal import of infancy is embodied in the learning by the individual of the boundaries of reality and of himself. To the extent that he learns that there are rigid uniformities and consistencies in the universe, to that extent he has gone a long way in an exceedingly new fashion—that is the personality implication of the inculcation of regularity in sleeping and feeding. Speaking as one from outside this section, I would wish to counsel its members to a certain caution in adopting verbal formulas from various disciplines. The formula often omits essential factors used effectively by the specialist without his awareness of their importance. His experience is frequently reflected but poorly in the utterances of any specialist, even those of a synthetic chemist There is a great deal that can be done by any medical man when he is inspired by the correct view of the individual. The creation of child study institutes and the accumulation of scientific material should be encouraged by every means. The person, infant or adult, is not a concrete unitary entity running around loose, but instead is invariably the nexus of a complicated fabric, and not carriers merely of tissues and organs.

Dr. Bronson Crothers, Boston: Psychiatry and psychology are far from being fads. They are absolutely inevitable parts of the intelligent general practice of pediatrics. The human contacts the pediatrician forms give him enormous advantages over the specialist who is called in after trouble begins. He knows, or ought to know, the character of the parents, how they have succeeded with their other children. He ought to know, at least, in general, the effect which the educational program devised for that particular child has upon him. It is perfectly evident that there are different kinds of education in private schools. One school may develop a peculiar type with great regularity. That is a thing which must be taken into consideration to decide whether or not anything shall be done about it. Another thing is that the present technic of elaborate psychiatric and psychologic clinics is adapted primarily to the discovery of new facts. It can hardly cover the entire ground. Public demand is such that children are going to be taken care of somehow. There is a strong effort being made to jump over the pediatrician largely because the pediatrician has not been sensitized to the situation. Dr. Richards speaks of a desirable situation occurring by which the pediatrician should be psychiatrically intelligent. I think that one of the serious dangers is that, if pediatricians do not become psychiatrically intelligent and educationally sensitive, the work of handling the child will be taken up by some one not pediatrically intelligent. I think that this would be a great pity. I think we have a fragile hold on a favorable position. If we can stay in, we are in a position to take advantage of advances quite definitely. Furthermore, every one will recognize that the handling of chronic disability is primarily a medical responsibility. I think no one would decry for a moment that the slightly handicapped child can be enormously mishandled from an emotional standpoint. So, an extraordinarily simple position in handling chronic disease is taken and if account of the emotional factors that must be set up by disability is taken, we shall go some distance. If habit training is regarded as something more than getting in vitamins and calories, another long step will be taken. After we once get that far, we must be extraordinarily stupid and unseeing if we do not try to grasp what we can from the efficient, elaborate technic of psychiatry and psychology. Psychiatrists and psychologists ought to prepare carefully to educate us. I do not feel that their efforts in this regard are by any means perfect.

Dr. John E. Anderson, Minneapolis: One comment occurs to me in line with what Dr. Sullivan has mentioned. It is to the effect that there are now being established in various universities in the United States organizations for the study of the development of children, which utilize the services of pediatricians, psychologists, sociologists, educators and other scientists in a combined attack on the scientific study of child development and which give promise of making substantial contributions to all phases of our knowledge of children. Much of the difficulty in handling children arises from the fact that adults assume, because of knowledge of how adults act, that they can therefore handle children, and because adults carry back from adult life into the life of the child many principles and facts without making a study of the child at his own level. It seems to me that pediatrics, if it realizes its scientific possibilities, is in the fortunate position of furnishing material for a reworking of much of the field of medicine and behavior, since the pediatricians are the people who see the developing person from birth through to adulthood, and who therefore have an integrated point of view with reference to behavior and development. The stage is past when one can look at a disease or an individual at any particular level and say that at that particular level one knows all about the disease or individual. In the present period the developmental history, the genetic story of the progress of the individual, is important. The child must be studied at his own level. Actual daily contact, observation and experiment, rather than the spinning of theory from armchairs, will contribute the important generalizations of the future.

Dr. Esther Loring Richards, Baltimore: In educating ourselves as physicians, teachers, social workers, psychologists, we have to beware of the great field of diverse opinion in the scientific study of behavior. The physician who has only a little time to read works on this subject is apt to be prejudiced by reading one single article. The field of child study as it is being developed in institutes such as the child Welfare Bureau of Iowa, the Minneapolis research station of Dr. Anderson, and in various other institutions of this country is bringing us invaluable material. On the other hand, I think we have to realize that the formal child guidance clinic as it is being thrust upon us sometimes is a little bit magnificent for our practical needs. In one clinic in this country, I am told, it costs about $500 to make a complete examination of one child. That is a little "steep," I think. I feel we have to realize that we are obliged to choose from many different brands of psychiatric intelligence which come to us, and that the choosing of that is not something that can be done in a hurry or with prejudice. We can make such choice only after a thoughtful consideration and acquaintance with the broad field of behavior study as it develops reliable data on which to base theory.

Clinical Notes, Suggestions and New Instruments

RAYNAUD'S DISEASE OF THE UPPER EXTREMITIES: CURE AFTER THORACIC SYMPATHECTOMY

Anatole Kolodny, M.D., Ph.D., Sioux City, Iowa

When Raynaud first described the disease subsequently named after him, he expressed an opinion that the circulatory disturbance in this disease was due to a vascular spasm. Recent microscopic study of the capillaries of the terminal phalanges of the involved extremity showed that the original suggestion of Raynaud is correct, and that the anatomic substratum of the disease is a prolonged vascular spasm due to irritation of the vasoconstrictors. Surgical treatment of this disease then suggested itself. It consists in an interruption of the path of the vasoconstrictors and in such a way in an abolition of the competition that the vasodilators have to meet. Deficient knowledge of the anatomy of the sympathetic vasotonic system up to recent years blocked the way of the evolution of surgical treatment of this disease. The periarterial sympathectomy of Leriche failed to effect a cure because of the fact that the sympathetic nerve system has a segmental distribution and that by a periarterial sympathectomy one actually interrupts only a small part of the sympathetic impulse to the extremity.

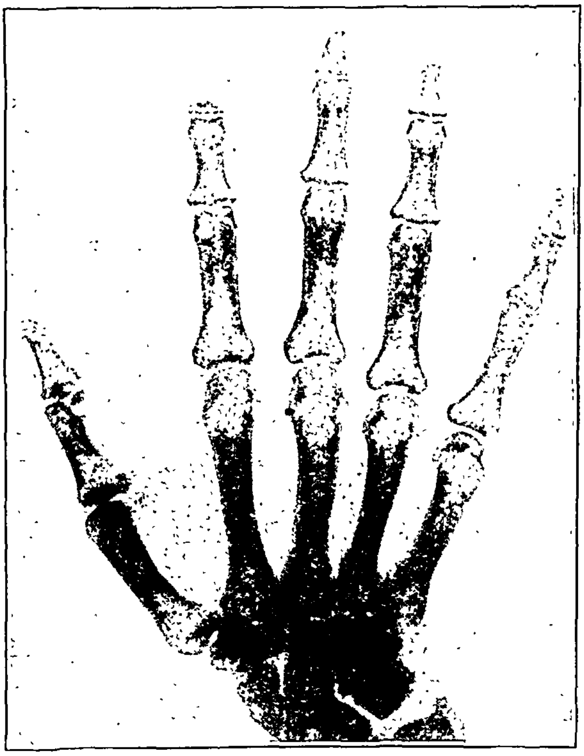

Fig. 1.—Atrophy of distal phalanges of the right hand.

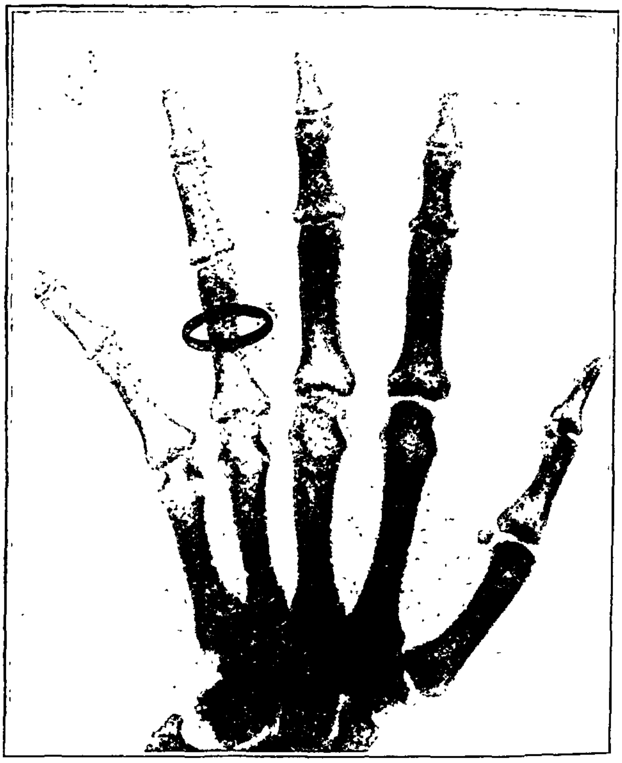

Fig. 2.—Appearance of left hand. Note the bony changes in the terminal phalanx of the little finger.

Raynaud's disease of the lower extremities is cured by a lumbar ganglionectomy. This is a well proved clinical fact. More difficult was progress in treating Raynaud's disease of the upper extremities. Cervical ganglionectomy was found to be wanting in effecting a cure. Only after Kuntz[1] demonstrated that a large number of the sympathetic fibers supplying the upper extremities pass through the second thoracic ganglion was it clearly understood why a cervical ganglionectomy failed therapeutically. In 1929, Adson put to test Kuntz's information. He suggested the removal of the second thoracic ganglion along with the stellate ganglion. The technic of this operation is described by Adson. In May, 1929, Adson[2] reported two cases in which he operated by this method, with good results.

Obviously, such cases are not frequent, and it might be of interest to put on record a patient with Raynaud's disease of the upper extremities on whom I operated in September, 1929.

REPORT OF CASE

A Bohemian woman, aged 30, had been noticing for many years that her fingers became pale and numb on exposure to cold; on a change to warm weather her fingers became red and swollen and tingled. At first these sensations were not so severe and would occur only in the winter, but in 1927 they began to come on at the slightest change of temperature the year around. All of the fingers of both hands would become numb; they tingled and pained. She had no relief between the attacks of pain. Soon black sore spots appeared beneath the nails at the tips of the fingers. To relieve the pain somewhat, she held her hands wrapped in a blanket, when the fingers would become quite cyanotic and perspire freely.

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[1] Kuntz, Albert: Distribution of Sympathetic Rami to Brachial Plexus: Its Relation to Sympathectomy Affecting Upper Extremity, Arch. Surg. **15**: 871-877 (Dec.) 1927.

[2] Adson, A. W., and Brown, G. E.: Surg. Gynec. Obst. **48**: 577-602 (May) 1929.

The patient was apparently in normal health, with the exception of somewhat stiff fingers covered with puffed bluish skin. Large drops of perspiration were seen over the fingers, especially on the palmer side. There was atrophy of the terminal phalanges of most of the fingers. The terminal phalanges of the right index finger and of the left little finger had disappeared almost entirely. The blood pressure was 132 systolic and 84 diastolic. The roentgenogram showed atrophy of the distal phalanges (fig. 1).

September 20, I operated under ether anesthesia. The stellate and the second thoracic sympathetic ganglion on the left side were removed. Examination in the afternoon showed the left hand to be pink, warm and dry, while the right hand was cold, moist and cyanotic. A slight Horner's syndrome was present on the left side. On the third day after operation the patient developed a pneumonia limited to the left lower lobe. The patient remained at the hospital six weeks. During the entire time of the patient's stay in the hospital the marked improvement in the circulation of the left hand persisted, and the patient was entirely free from any of the former symptoms in the left hand, while the clinical picture of the right hand has not changed. A letter from the referring physician, Dr. Keough of Dubuque, Iowa, of May 19, 1930, reads, "Your operation helped her a great deal on the left side. The result was wonderful."

Frances Building.

WHIRLPOOL BATHS AND POSTERIOR SPLINTING TO OVERCOME CONTRACTURES IN BURNS

J. W. Hilbert, M.D., South Bend, Ind.

Contractures occurring secondary to burned areas about a joint are always problems of considerable magnitude, especially when the disability and compensation factors are taken into consideration. Many methods have, in the past, been used, such as open method with extension and weights, paraffin method and sand bagging, all of which have caused considerable pain to the patient and many of which had finally to be discontinued either because of the discomfort or because they were not practical over a long period of time.

I report this case merely because, as far as I can discover, the method used is unique, is easily carried out and gives excellent results.

July 8, 1930, a white man, aged 24, sustained extensive second and third degree burns to both extremities from the ankles to the middle third of the thighs. The whole circumference of both limbs was involved. A thick application of ointment dressing was applied and the patient removed to the hospital. Within twenty-four hours the patient presented a toxic picture with chills, fever and rapid pulse; he became delirious; the urine showed albumin, much pus, granular casts and blood. The routine procedure of relieving the kidneys was followed with normal response, but by the fifth day sloughing of the burned areas and purulent secretions became very extensive. Because of the pain associated with the dressing and cleaning of the parts, the patient's extremities were subjected to whirlpool baths, at a temperature beginning at 100 F. and increasing to 110, for ten minutes. This not only took away all secretions and the major portion of the sloughs but also affected a stimulating massage. On the seventh day the first evidences of contractures became manifest and within twenty-four hours there was right angle flexion of the limbs at the knees. Two light weight but strong veneered boards were designed so as to extend from the patient's heels to just below his buttocks. These were tapered from 2½ inches at the distal end to 8 inches at the proximal extremity. After padding with cotton and covering with gauze the splints were placed, one posterior to each limb, and 2 inch gauze ties were used as an anchorage at the ankle and at the middle third of the thigh. By this method the weight of the limb, after twenty-four hours, overcame without pain to the patient almost all of the contracture at the knees, so that the 8 inch distance from the splint to the popliteal space on application of the splint was reduced to 3 inches in one day's time. In another twelve hours the legs were fully extended and the splints were removed. After three days there again appeared some flexion, but this was readily overcome by reapplication of the splints for a period of another twenty-four hours. Whirlpool baths followed by water cooled ultraviolet irradiations were continued daily to July 24, at which time this procedure was done every second day until August 8. After six weeks' time the patient has but a few denuded areas on each leg, which are rapidly filling in with healthy epithelium. He walks normally, without pain; he can flex and extend both limbs normally and will have no permanent impairment.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

The Council has authorized publication of the following report.
W. A. Puckner, Secretary.

INCREASED POTENCY OF VIOSTEROL PREPARATIONS

The Council accepted viosterol in oil 100 D and cod liver oil with viosterol 5 D and the brands made under license from the Wisconsin Alumni Research Foundation by the following firms: Abbott Laboratories, Mead Johnson & Co., Parke, Davis & Co., and E. R. Squibb & Sons.

The Wisconsin Alumni Research Foundation informed the Council that the accumulated clinical experience with viosterol has shown that better results in the treatment of rickets are secured when a dosage of vitamin D is used larger than that originally recommended. The Foundation in addition points out that the maximum limits of safety as to the amount of vitamin D that can be used has now been more definitely determined than was the case when preparations of viosterol were first put on the market. Instead of increasing the dosage of the present products, the Foundation and its licensees determined to increase the potency of the preparations used. It was decided to increase the potency of viosterol in oil so that instead of having 100 times the vitamin D potency of a standard cod liver oil as determined on rats by the Steenbock line test, it shall have 250 times that potency, and, provided the Council on Pharmacy and Chemistry should agree, to increase the potency of cod liver oil with viosterol so that instead of having 5 times the vitamin D potency of a standard cod liver oil as determined on rats by the Steenbock line test, it shall have 10 times that potency. The Foundation has supplied each of the manufacturers operating under its license with a preparation of viosterol in oil 250 D (Steenbock standard), to be used as a control in the standardization of their respective products. The Foundation announced that these products of increased potency will be put on the market beginning with October first.

The Council on Pharmacy and Chemistry has accepted the changes of potency determined on by the Wisconsin Alumni Research Foundation and has changed the name of viosterol in oil 100 D to viosterol in oil 250 D and the name of cod liver oil with viosterol 5 D to cod liver oil with viosterol 10 D. It has continued the acceptance of the viosterol preparations already accepted, under the new names, viz.: Viosterol in Oil 250 D-Abbott, Abbott's Cod Liver Oil with Viosterol 10 D (Abbott Laboratories); Mead's Viosterol in Oil 250 D, Mead's 10 D Cod Liver Oil with Viosterol (Mead Johnson & Co.); Parke, Davis & Co.'s Viosterol in Oil 250 D, Parke, Davis & Co.'s Cod Liver Oil with Viosterol 10 D (Parke, Davis & Co.); Viosterol in Oil 250 D-Squibb, Squibb's Cod Liver Oil with Viosterol 10 D, and Squibb's Cod Liver Oil with Viosterol 10 D, Mint-Flavored (E. R. Squibb & Sons).

Characteristics Depend on Genes.—All types of characteristics, all manifestations of life, of whatever sort, are alterable by altering genes. . . . Structural characteristics, internal and external, colors, shapes, sizes, chemical properties, physiological functions, senses, behavior—all have been shown to be changed by changing genes.—Jennings, H. S.: The Biological Basis of Human Nature, New York, W. W. Norton & Co., Inc.

THE JOURNAL OF THE
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SATURDAY, OCTOBER 4, 1930

HEMOCHROMATOSIS

Hemochromatosis is a rare but readily recognized disease characterized clinically by bronzing of the skin, by ascites and other symptoms of cirrhosis of the liver, and by diabetes mellitus. Anatomically it is characterized by the widespread deposition of pigment in the tissues and organs of the body including the skin, to which the visible bronzing is due; by continuous destruction of liver cells and their replacement by connective tissue, to which the manifestations of cirrhosis are due; and by destruction of acinous and islet cells of the pancreas and their replacement by connective tissue, to which the symptoms of diabetes are due. The more exact modern knowledge of the condition dates from the classic presentation of the subject by von Recklinghausen, who in 1889 gave a thorough description of the disease and demonstrated the presence in the tissues of two kinds of pigment. One of these, which is iron-free and which he named hemofuscin, is widely distributed in the connective tissues and smooth muscle, where it usually occurs alone, and in the epithelial cells of various glandular organs, where it is usually associated with the second pigment, which contains iron and has been known as hemosiderin since the time of Virchow. Of the various morphologic changes that occur in hemochromatosis, deposition of pigment is the fundamental one. The other alterations that produce the dominating clinical symptoms are secondary. Characteristic of the disease and necessary for the proof that a given condition is hemochromatosis is the presence of the two pigments. Von Recklinghausen himself derived the deposited hemofuscin from the hemoglobin of the blood, but many of his contemporary pathologists did not consider such an origin well established.

Since the time of von Recklinghausen, nothing essentially new has been added to knowledge of the disease and no new conception of its nature was offered until the work of Mallory[1] of Boston. Ten cases of the disease that came to necropsy at the Boston City Hospital within the course of a single year furnished an unusual material for the study of the pathologic histology of the disease. Also available for study were nine other cases that had been examined post mortem either before or after the series of ten cases. Study of the clinical records of this group of cases brought to light two factors that seemed to have a bearing on the causation of hemochromatosis; namely, excessive indulgence in alcohol or exposure to copper. By the addition of copper acetate to the food of rabbits, in daily doses of 200 mg. over a long period, Mallory, Parker and Nye[2] were able to cause a pigmentary cirrhosis of the liver which, in the presence of both hemofuscin and hemosiderin, in the necrosis of pigment laden cells, and in the connective tissue replacement of the destroyed cells, they held to be identical with the cirrhosis of human hemochromatosis. From his clinical, pathologic and experimental studies Mallory concluded that chronic copper poisoning is the important etiologic factor in hemochromatosis. He believes that hemofuscin is formed from the hemoglobin of the blood, the exact nature of the transformation being as yet unclear. Overloading of the cells of the liver and pancreas with pigment leads to their necrosis and to their replacement by connective tissues. The destruction of liver cells is associated with regeneration of parenchymatous cells, in which the process of pigmentation, necrosis and replacement is again repeated. In the course of time, the process being a slow and protracted one, iron is united to the hemofuscin, the pigment that gives the iron reactions of hemosiderin being thus formed. The development of the complete and typical symptom complex of hemochromatosis takes from fifteen to twenty-five or more years.

The manner in which chronic poisoning with copper causes hemochromatosis cannot be considered fully understood, and the mechanism of the action of the metal does not appear to be a direct and simple one. It is known that in larger doses copper salts cause hemolysis and hemoglobinuria. It is probable that in smaller doses they also cause destruction of erythrocytes, but why the hematogenous pigment that results from the prolonged slight destruction of red blood corpuscles should be distributed so widely as it is or should be retained in the tissues so tenaciously instead of being excreted or changed to bilirubin is not explained. In the case of the human disease, the implication of copper as the etiologic agent is conjectural and is based on a history of overindulgence in alcohol or exposure to copper. Alcohol, usually held responsible for the nonpigmentary form of interlobular cirrhosis, is blamed because the illicit liquors made under the eighteenth constitutional amendment frequently contain copper. Mallory found as much as 185 mg. per liter in one sample of whisky.

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[1] Mallory, F. B.: The Relation of Chronic Poisoning with Copper to Hemochromatosis, Am. J. Path. **1**: 117 (Jan.) 1925; Hemochromatosis and Chronic Poisoning with Copper: Tenth Mellon Lecture, Arch. Int. Med. **37**: 336 (March) 1926.

[2] Mallory, F. B.; Parker, Frederic, Jr., and Nye, R. N.: Experimental Pigment Cirrhosis Due to Copper and Its Relation to Hemochromatosis, J. M. Res. **42**: 461 (Oct.) 1921.

In five of the pigmented cirrhotic livers examined quantitatively for copper by Mallory, the copper content varied from 1.5 to 19.1 mg. per kilogram of liver. The copper content of four control livers varied from 0.77 to 20.4 mg. per kilogram, the largest amount being found in the liver of so-called alcoholic cirrhosis.

In the case of the experimental disease, the mode of action of copper is also not completely established. Flinn and Von Glahn [3] of New York were unable, by the long continued administration of copper to rabbits and other laboratory animals, to cause the characteristic pigmentation and cirrhosis of the liver of hemochromatosis. Oshima and Siebert,[4] stimulated by three cases that were examined post mortem in Aschoff's institute in Freiburg, have more recently repeated the feeding experiments of Mallory. Copper acetate in a dosage of 200 mg. daily was administered to rabbits by stomach tube over a period of from 61 to 249 days. Marked pigmentation of the liver resulted and the copper content of the liver varied from 52 to 170 mg. per kilogram of liver, as compared with an average of 6 mg. per kilogram in control animals, but the necrosis of liver cells and the increase in connective tissue of the liver described by Mallory were absent. Furthermore, the iron-free pigment in the liver cells was soluble in alkalis and not stained by fuchsin. Despite their somewhat discordant results, Oshima and Siebert, who had been able to examine Mallory's microscopic preparations, were convinced that the latter had actually caused the development of hemochromatosis experimentally. They believe, however, that some unknown factor must act with copper to cause the pigmentary cirrhosis of hemochromatosis.

In his report of the three human cases, Siebert [5] calls attention again to the marked pigmentation of the synovial membranes of the joints noted by von Recklinghausen, and to pigmentation of the epithelial cells of the hypophysis, not sufficiently emphasized in some previous reports. The gallbladder of each of the patients contained pigment calculi with a high copper content. The patients came from villages devoted to the wine producing industry, in which copper salts are widely used. The incidence of hemochromatosis is higher in this district than in other parts of Germany. The livers of these patients are included in a series of sixteen livers from hemochromatosis examined for copper by Oshima and Schönheimer.[6] The copper content varied from 9.86 to 19.33 mg. per kilogram, as compared with from 1.09 to 3.9 mg. in seventeen normal livers.

While the exact way in which long continued intoxication by small amounts of copper causes hemochromatosis has not been clearly shown, a relationship of cause and effect as between copper and hemochromatosis appears probable. Although hemochromatosis in its fully developed and easily recognized form is a rare disease, the detection by Mallory of hemofuscin and hemosiderin in the liver, pancreas, kidneys and heart muscle of 11.6 per cent of all adults, a total of 463, coming to necropsy at the Boston City Hospital in the course of two and one-half years suggests that milder and incompletely developed forms of the disease may be more frequent than is generally supposed. If the prohibition experiment has led to a decrease of alcoholic cirrhosis, as some have claimed, the continued use of illicit liquors containing copper may lead to a replacement in medical statistics of nonpigmentary interlobular cirrhosis of the liver by the pigmentary cirrhosis of hemochromatosis.

HYPERVITAMINOSIS WITH VITAMIN D

The introduction of irradiated ergosterol in various forms, such as viosterol in oil or cod liver oil supplemented with viosterol, into modern therapy has raised many questions of practical as well as scientific importance. The uncertainty as to the possible toxicity of an agent so uniquely potent as irradiated ergosterol awakened misgivings regarding the desirability of advocating its widespread use. These misgivings prompted the limitation of the recommended dosage within modest bounds. However, it has been repeatedly demonstrated that doses a hundred or even a thousand times those that bring about cures of rickets may be used before disaster ensues. The dreaded specters of hypercalcemia, with its dire effects on the arteries, and of hyperphosphatemia were presently dispelled. The pendulum of dosage had swung so far in the direction of caution that it now seems advisable to increase somewhat the concentration of viosterol in oil and in cod liver oil adopted by the Council on Pharmacy and Chemistry of the American Medical Association for products included in New and Nonofficial Remedies.[1] On page 1021 of this issue the Council reports that the preparations of viosterol in oil formerly having 100 times the vitamin D potency of a standard cod liver oil as determined on rats by the Steenbock line test are increased to 250 times that potency, and that the preparations of cod liver oil with viosterol formerly having 5 times the vitamin D potency of a standard cod liver oil as determined on rats by the Steenbock line test are increased to 10 times that potency.

Another question of moment involves the modus operandi of vitamin D or viosterol, particularly under conditions in which a real hypervitaminosis is encountered. Is absorption of calcium or phosphorus or both augmented in undue degree or do these elements fail to be eliminated to the usual extent, so that a marked positive balance ensues, leading to a surfeit accumulation in the organism? Or, again, are stores like that in the bones mobilized to such an extent by overdosage of vitamin D that calcium and phosphorus circulate in excessive amounts, thereby injuring receptive tissues? There have already been numerous investigations of these questions. Calcium deposits have been described for the kidneys and aorta. It is admitted that hypercalcemia and hyperphosphatemia occur.[2] The latest studies of Watchorn[3] in the Biochemical Laboratory, Cambridge, England, confirm the fact that the deposit of calcium found in certain tissues as the result of large doses of viosterol cannot be accounted for on the grounds of increased absorption and retention. As Watchorn points out, the source of this calcium must be looked for elsewhere, and, unlikely as it appears *a priori* that the action of large doses of a substance that normally aids calcification of the bones should be in the reverse direction, it is difficult to see where the deposited calcium comes from if not from the bones. Although it has been shown that the danger of moderate doses of viosterol is not as great as feared at first and that the dosage may be safely increased in accordance with the action of the Council, the whole question of the action of vitamin D is far from being solved.

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[3] Flinn, F. B., and Von Glahn, W. C.: A Clinical and Pathologic Study of the Effects of Copper on the Liver, J. Exper. Med. **49**: 5 (Jan.) 1929.

[4] Oshima, F., and Siebert, P.: Experimentelle chronische Kupfervergiftung: Ein Beitrag zur Frage der Pathogenese der Hamochromatose, Beitr. z. path. Anat. u. z. allg. Path. **84**: 106 (Feb.) 1930.

[5] Siebert, P.: Ueber menschliche Hämochromatose, Beitr. z. path. Anat. u. z. allg. Path. **84**: 111 (Feb.) 1930.

[6] Oshima, F., and Schönheimer, R.: Ueber den Kupfergehalt der normalen Leber und der Leber bei Hamochromatose, sowie von Gallensteinen und Gesamtblut, Ztschr. f. physiol. Chem. (Hoppe-Seyler's) **180**: 252 (Dec.) 1928.

[1] Hess, J. H.; Poncher, H. G.; Dale, M. L., and Klein, R. I.: Viosterol (Irradiated Ergosterol): Prophylactic and Therapeutic Dosage, J. A. M. A. **95**: 316 (Aug. 2) 1930.

ORAL IMMUNIZATION AGAINST PNEUMOCOCCI

Successful immunization against specific infections by oral administration of killed micro-organisms or microbic products would be a major therapeutic advance, since it might free the public mind from its main objections to vaccine therapy. Thus far, laboratory studies have not been encouraging. Apparently most of the suggested oral vaccines are so rapidly destroyed or denatured in the gastro-intestinal tract as to lose completely their antigenicity. Perhaps they take on new antigenicities not specifically protective. Oral immunization, therefore, will presumably be limited to the relatively few vaccines sufficiently resistant to gastro-intestinal denaturization to be absorbed practically unchanged in effective immunizing doses. The most resistant group of micro-organisms thus far studied are apparently the pneumococci. Recently, successful oral vaccines against pneumococci are reported to have been developed by Dr. Victor Ross of the Board of Health Laboratories in New York.

In earlier researches, Ross demonstrated that rats fed with tissues of animals killed by type I pneumococci acquire an increased resistance to intraperitoneal injections with this pneumococcic type[1] and that a similar though less regular type-specific immunity could be conferred by repeated feedings with living cultures.[2] Rats thus immunized would tolerate intraperitoneal injection of from 1,000 to 10,000 minimal lethal doses of type I pneumococci, the acquired type-specific immunity lasting for at least four months.[3] In his hands, heat killed pneumococci afforded little or no oral protection,[2] nor were degraded avirulent pneumococci successful immunizing agents.[4] The development of a successful oral vaccine, therefore, apparently depended on the discovery of a method of devitalizing fully virulent test tube cultures in such a way as not to alter or destroy their initial antigenicity.

Successful methods of homologous devitalization now seem to have been found.[4] Ross reports that pneumococci grown in milk can be devitalized at 60 C. and still function as fairly successful oral vaccines. His most successful devitalizations, however, are desiccated, mechanically disrupted (agate mortar) virulent pneumococci, pneumococci killed by hydrochloric acid, and Berkefeld filtrates from pneumococci dissolved in bile or in sodium glycocholate. Less successful results were obtained with specific polysaccharides isolated from pneumococci.[5]

Ross's most encouraging results are his demonstration of the astonishing rapidity of development of type-specific immunity following such oral vaccinations. "The increased resistance to the virulent pneumococcus is present . . . forty-eighty hours after the material is ingested and can occasionally be detected to a smaller degree at the end of twenty-four hours." In the few clinical trials thus far made, Ross reports that "no apparent discomfort has been found to follow the ingestion . . . of acid killed pneumococci . . . [by patients in doses] much larger than would be required if dosage is calculated on the basis of [relative body] weight." From the theoretical point of view, Ross's "inability to find agglutinins and precipitins in the serums of [orally] immunized animals" and his "uncertainty whether the immunity need . . . be accompanied by an increase in protective value of the serum" is suggestive in its bearing on the newer theories of specific antibody formation.[6]

It is to be hoped that Ross's encouraging researches will not be handicapped by premature clinical or commercial exploitation. It still remains for him to determine whether or not oral vaccines are equally effective for other than type I pneumococci and, if so, whether or not a polyvalent oral vaccine is effective with laboratory animals. Above all, it must be determined whether or not orally acquired systemic immunity to pneumococcic infections is accompanied by an increased specific resistance to pulmonary infection. Too little is known of the relation of systemic resistance to alveolar defense to allow one to dogmatize on this subject. Terrell's[7] generalization that, with local pneumococcic infections, "circulating antibodies appear to have little effect in preventing the spread of the process or determining the outcome of the disease" illustrates the dangers of reasoning from conventional immunologic preconceptions in this disease.

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[2] Ashford, C. A.: The Phosphorus Distribution in Blood and the Excretion During Hypervitaminosis D., Biochem. [illegible]

[3] Watchorn, E.: The Absorption and Excretion of Calcium and Phosphorus by Rats Receiving Excessive Doses of Irradiated Ergosterol, Biochem. J. **24**: 631, 1930. Brown, H. B., and Strobel, A. T.: J. Biol. Chem. **86**: 245, 1930.

[1] Ross, Victor: Immunity to Pneumococcus Produced in Rats by Feeding Tissues of Animals Killed by the Same Organism, J. Immunol. **12**: 219 (Sept.) 1926.

[2] Ross, Victor: Immunity to Pneumococcus Produced in Rats by Feeding Them the Germ, J. Immunol. **12**: 237 (Sept.) 1926.

[3] Ross, Victor: Response of Orally Immunized Rats to a Second Injection of Pneumococcus and the Minimum Duration of Immunity, J. Immunol. **12**: 323 (Oct.) 1926.

[4] Ross, Victor: Oral Immunization Against Pneumococcus, J. Exper. Med. **51**: 585 (April) 1930.

[5] Ross, Victor: Effect of Feeding Specific Polysaccharide on Resistance to Pneumococci, Proc. Soc. Exper. Biol. & Med. **27**: 658 (April) 1930.

[6] Jordan, E. O., and Falk, I. S.: The Newer Knowledge of Bacteriology and Immunology, University of Chicago Press, 1928, chapter 81, p. 1078.

Current Comment

THE CARDIAC OUTPUT IN HEART DISEASE

The output of the heart is of the utmost importance in maintaining the circulation. The amount of blood that passes through the entire body and is available for the metabolism of the tissues depends on the quantity of blood that leaves the heart in each unit of time. It is a well established physiologic fact that the cardiac output may remain constant despite considerable variations in arterial resistance and in the rate of the beat. The primary factor that determines changes in the output is the venous inflow into the heart. As Starling pointed out, the alterations in the vigor of the circulation depend in the first instance on the venous circulation. The greater the volume of the blood that is brought to the heart by the accessory factors of the circulation, the greater will be the output of this organ. Thus the heart is able to vary its output and the work it does according to requirements. A rise in blood pressure within normal limits caused by increased resistance makes no difference to the output except for a few beats. At first the heart fails to drive out its contents adequately, but if the venous inflow is maintained this becomes added to the retained blood to distend the ventricles, which in turn contract more forcibly and overcome the resistance. This phenomenon is sometimes described as the law of the heart. Most of the features that it involves have been ascertained by experiments on animals. In recent years, however, indirect methods have been applied to study the problems involved in man, and of late the conditions existing in persons with heart disease also have been investigated.[8] Experiments at the Peter Bent Brigham Hospital in Boston by Alt, Walker and Smith[8] have included patients with compensated heart disease, chronic myocarditis, and complete heart block who were subjected to moderate, standardized grades of work on the Krogh bicycle ergometer. Measurements were made of the cardiac output, pulse rate and blood pressure during exercise. The response of the cardiac output in the patients with heart disease was not essentially different from the response in the normal person. The Boston clinicians remark that this is consistent with the work of some authors who have found that the output of the heart is a function of the respiratory metabolism. If the heart could not have maintained an adequate circulation with the grade of work used, they add, a cumulating oxygen debt would have ensued and exercise could not have been continued for a long period. Although the response of the cardiac output was quite similar in all of the persons studied, several of the patients with heart disease experienced dyspnea, fatigue and general distress, symptoms that were almost negligible in the normal subject. These adverse subjective reactions were not related to any considerable variation in the measurable cardiac output. Hence Alt, Walker and Smith properly point out that there are yet some unknown factors present in the circulatory mechanism of patients with heart disease. These are manifested by symptoms of dyspnea and fatigue on exertion but are at present unmeasurable by determinations of the cardiac output, stroke volume, vital capacity or respiratory minute ventilation.

BODY FLUID VOLUME IN EPILEPSY

A close association exists between acid-base balance and fluid movement in the body. Edema and dehydration are in large part the resultants of an abnormal disturbance of electrolyte equilibrium. Obviously, therefore, should occasion require, fluid volume can within limits be adjusted by the expedient of manipulating the acid-base balance. It has been indicated[1] that in epilepsy there exists an excess of fluid volume in the supracortical spaces, and one of the modes of treatment that has proved generally efficacious consists of dehydration both through limitation of water and by the ketogenic diet.[2] A somewhat different aspect of the factor of change in body fluid in epilepsy has recently been pointed out by Gamble,[3] who emphasizes the essential automatic defense mechanism of the body during the period of seizure. The acid-base excretion of a patient was observed over the period of seizures, approximately two days, as well as over the four to seven days intervening. It was observed that an irregular excretion of base occurred but with pronounced increases during the attacks, in spite of the fact that the patient was on a diet providing a constant intake of fixed base. Since this periodic accentuated loss was accounted for by sodium rather than by the other bases, it appears that an accompanying loss of body fluid took place, an interpretation supported by the corresponding variation in the volume of urine. Whether or not the loss of base and fluid is caused by the nervous manifestations, the observed correlation will serve as additional evidence in elucidating the details of the pathogenesis of epilepsy.

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[7] Terrell, E. E.: Changes in Humoral Immunity Occurring During the Early Stages of Experimental Pneumococcus Infection, J. Exper. Med. **51**: 425 (March) 1930.

[8] References to the literature are given by Alt, H L.; Walker, G. L., and Smith, W. C.: The Cardiac Output in Heart Disease: II. Effect of Exercise on the Circulation in Patients with Chronic Rheumatic Valvular Disease, Subacute Rheumatic Fever and Complete Heart Block, Arch. Int. Med. **45**: 958 (June) 1930.

[1] Fay, Temple: The Therapeutic Effect of Dehydration on Epileptic Patients, Arch. Neurol & Psychiat **23**: 920 (May) 1930

[2] Dehydration in the Treatment of Epilepsy, Current Comment, J. A. M. A. **94**: 721 (March 8) 1930

[3] Gamble, J. L.: Epilepsy, Arch. Neurol. & Psychiat. **23**: 915 (May) 1930.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, Tuesday and Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

October 6. Why Worry?
October 7. Why Worry?
October 11. The Traveling Worrier.

Five minute health talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

October 6. Where Do People Die?
October 7. The Poison Ivy Pest.
October 8. The Sore Throat Danger Signal.
October 9. Everybody's Business.
October 10. Infections Spoil Complexions.
October 11. New Hazards for Old.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Society News.—During the session of the Northwest District Medical Society, October 3-4, a portrait of Dr. Josiah Clark Nott, founder and first professor of surgery at the University of Alabama Medical School at Mobile, will be unveiled by Mr. James Van Antwerp, the donor. The guest of honor on the clinical program to be given entirely by Mobile graduates will be Dr. John A. Lanford of the University of Louisiana School of Medicine, New Orleans. On Saturday the visitors will be guests at the Alabama-Mississippi football game.

CALIFORNIA

A Million for the Sick Poor.—The largest bequest in the $10,000,000 will of the late Senator James D. Phelan, filed for probate in San Francisco, was $1,000,000 to create the James D. Phelan Foundation to assist without distinction as to nationality, creed or sex in relieving the sick poor of the city and county of San Francisco from disease and suffering and for employing and furnishing nurses to care for them, primarily, in their homes. The trustees are authorized to obtain nurses when necessary, and when nursing service is unnecessary to apply the income to assist the needy sick to personal comfort and quick recovery.

Condemnation of Walnuts.—A survey recently made by the United States Department of Agriculture and the state department of agriculture cooperating with the state department of public health, has revealed that during the season of 1929-1930 a total of 1,594,263 pounds of off-grade walnut meats were condemned. These products consisted of walnut meats that were moldy, rancid or infested with worms, and were placed in sacks and quarantined. The purpose of this inspection of nut cracking establishments, wholesale candy factories and wholesale bakeries as well as cold storage plants, was for the removal of faulty products from the market for the benefit of the public.

Spider Poisoning.—Several fatal cases of poisoning caused by the bite of the so-called "black widow" spider were reported in California this summer. This spider, said to be the only poisonous spider in the country, inhabits the lower half of the United States from coast to coast and obtains the name "black widow" from its custom of eating its mate. The body of the female, which is always responsible for the bites, is often one-half inch in length, brilliantly marked with red or yellow or both, in an hour glass design, and the long shiny black legs may stretch over a spread of as much as 2 inches. In fatal cases death generally occurs in from fourteen to thirty-two hours. A convalescent blood serum, taken from individuals who have recovered from bites of this spider, has been used successfully in the treatment of acute cases.

COLORADO

State Medical Election.—Dr. William A. Kickland, Fort Collins, was installed as president of the Colorado State Medical Society at its annual meeting at Pueblo, September 9-11. Dr. Edward Delehanty, Denver, was made president-elect; Drs. Edgar D. Downing, Woodmen; George M. Noonan, Walsenburg; Isaac L. Gotthelf, Saguache, and Frank W. Lockwood, Fort Morgan, vice presidents, and Drs. Lorenz W. Frank, Denver, and Leo W. Bortree, Colorado Springs, constitutional secretary and treasurer, respectively. Mr. Harvey T. Sethman is the executive secretary of the society.

ILLINOIS

Society News.—Dr. Robert S. Berghoff, Chicago, presented a paper to the McLean County Medical Society, September 9, on "Syphilis of the Heart."——The Quincy Physicians' Club will be addressed, October 6, by Dr. Edmund B. Montgomery on progress in gynecology.——The Peoria Medical Society was addressed, September 16, by Dr. John S. Coulter, Chicago, on "Physical Therapy in General Practice."——Dr. Irving S. Cutter, dean, Northwestern University Medical School, addressed the Rock Island and Moline physicians' clubs in Rock Island, September 16, on "Relation of Cultural Medicine to Medical Practice."——The Alexander County Medical Society was addressed, September 19, at Cairo by Dr. Alexander Brunschwig, Chicago, on "Rare Diseases of the Epiphyses of the Bones of the Extremities."

Chicago

Personal.—Sir James Purves-Stewart of London was guest of honor at a dinner given, September 16, under the auspices of the Chicago Institute of Medicine, the Chicago Society of Internal Medicine, and the Chicago Neurological Society, allied organizations and members of the faculty of Northwestern Medical School.——Dr. Frederick O. Tonney, for many years director of research laboratories of the health department, was recently transferred to the laboratory of the Municipal Contagious Hospital, where he will organize a research department.

IOWA

Society News.—The forty-third annual meeting of the Medical Society of the Missouri Valley will be held in Des Moines, October 15-17, with headquarters at the Fort Des Moines Hotel. The guest speakers will include Drs. Russell M. Wilder, whose subject will be "Glycosurias Other Than Diabetes Mellitus"; Loyal E. Davis, Chicago, "Surgical Treatment of Intracranial Meningiomas"; Willard Bartlett, St. Louis, "A Concept of Thyroidectomy Technic of Today," and Joseph Colt Bloodgood, Baltimore, "Cancer of the Skin and Oral Cavity—A Preventable Disease."——At the Lucas County Medical Society meeting, September 2, motion picture films concerning movements of the alimentary tract in experimental animals and emergency operations, liver-stab wound and bullet wound in the bladder were viewed.——The Scott County Medical Society was addressed, September 2, by Dr. James C. Masson, Rochester, Minn., on "Extra-Uterine Pregnancy."——The Washington County Medical Society was addressed at its annual meeting, September 2, by Dr. George A. Jenkins, Albia, on "The Country Doctor"; Dr. William A. Rohlf, president, state medical society, spoke on various state society matters.——The Upper Des Moines Medical Society, composed of physicians from Clay, Dickinson, Emmet and Palo Alto, held its annual meeting at Spirit Lake, August 14; the following physicians from Rochester, Minn., spoke: Hugh Cabot, on "Relation of the Catheter to So-Called Catheter Cystitis"; Harry M. Conner, "Treatment of Pernicious Anemia"; William H. D. Goeckerman, dermatitis; Roger L. J. Kennedy, "Chronic Laryngeal Stridor."——Dr. Richard H. Jaffe, Chicago, addressed the Des Moines Academy of Medicine and the Polk County Medical Society, September 30, on "Visceral Changes in the Late Stages of Acquired Syphilis, with Special Reference to Syphilitic Aortitis."——The Ringgold County Medical Society was addressed, September 18, at Mount Ayr, by Dr. Fred Moore, Des Moines, on "Infant Feeding."——The Dubuque County Medical Society was addressed at its annual meeting, September 23, by Dr. Nelson M. Percy, Chicago, on "Appendicitis and Intestinal Obstruction," and Clarence W. Baldridge, Iowa City, "Recent Developments in Diseases of the Blood";

a motion picture of "Management of Breech Presentation" was presented by Dr. David A. Horner, Chicago.——Dr. William M. Rohrbacher, Iowa City, spoke on "Use of Ultraviolet Ray in Vincent's Angina" before the Johnson County Medical Society, July 2.

KENTUCKY

Society News.—The Daviess County Medical Association was addressed, September 9, by Drs. Isaac J. Hoover, "Use of Sodium Amytal as an Anesthetic Agent," and Francis M. Sherman, Owensboro, on "Indications, Contraindications and Complications of Ethyl Anesthesia."——The Letcher County Medical Society was recently addressed at Jenkins by Drs. Robert L. Kelly, Louisville, on "Syphilis and Its Treatment"; Albert G. Rutherford, Welch, W. Va., "Head Injuries," and William W. Nicholson, Louisville, "Summer Diarrheas."——Physicians of Graves, Calloway, Hickman and Fulton counties were addressed, September 30, among others, by Dr. Arthur G. Quinn, Memphis, Tenn., on "Diseases of the Thymus Gland in Infants."

MARYLAND

Personal.—Dr. Thomas S. Cullen, professor of clinical gynecology, Johns Hopkins University School of Medicine, Baltimore, was presented with the degree of doctor of laws by the University of Toronto at a special convocation, September 16, in connection with the opening of the Banting Research Institute. The honor was conferred in recognition of Dr. Cullen's work on cancer. He graduated as a silver medalist from the University of Toronto forty years ago.

Hospital News.—The new addition and the added facilities at the Emergency Hospital, Annapolis, were completed, October 1, and will give the hospital 100 beds and double its present capacity. This hospital is affiliated with the Johns Hopkins Hospital, Baltimore, and the Sheppard and Enoch Pratt Hospital, Towson; a two months' course in pediatrics is studied at Johns Hopkins Hospital and a three months' course in psychiatry at the Sheppard and Enoch Pratt Hospital.——The discovery of a kitchen helper connected with the preparation of food for employees in the Johns Hopkins Hospital, who was a "walking typhoid case," was recently reported.——The new hospital at Fort George G. Meade, with accommodations for 100 patients, has been completed at a cost of $243,233.

County Health Service in Maryland.—Dr. William S. Keister has been transferred from Prince Georges County to become full-time health officer for Baltimore County with headquarters at Towson, and Dr. Archie B. Hooton will be full-time health officer for Prince Georges County with headquarters at Upper Marlboro. Dr. Hooton has been in charge of the health unit in Darlington County, S. C., for the past eight years. Dr. Robert H. Riley, director, state department of health, stated that arrangements are under way for the appointment of a full-time health officer for Anne Arundel and Washington counties. When this is completed, fourteen counties, having a population of 653,000, or four fifths of the total population of the counties, will have full-time health service. Six of the remaining counties—Caroline and Dorchester, Charles and St. Mary's, and Somerset and Worcester—with a population of 120,527, or 14 per cent of the total population of the counties, are grouped into sanitary districts with a full-time deputy state health officer in charge of each district. The three counties with part-time service, Garrett, Howard and Queen Anne's counties, have a combined population of approximately 50,000 and constitute 6 per cent of the total population of the counties. Dr. Riley states that the goal set for the state is full-time health service for each county corresponding to the full-time educational service which is already established for each county.

MASSACHUSETTS

Dr. Knoop Gives Dunham Lectures.—Dr. Franz Knoop, professor of physiologic chemistry and director of the Institute for Physiological Chemistry, University of Tübingen, will deliver two lectures at the Harvard Medical School, October 15 and 17, at 5 o'clock, under the Edward K. Dunham Lectureship for the Promotion of Medical Sciences; the subject will be "Intermediary Metabolism."

Society News.—The Berkshire District Medical Society was addressed, September 19, by Dr. Edward A. Archibald, professor of surgery at McGill University Faculty of Medicine, Montreal, on "Indications for Surgery in Pulmonary Tuberculosis."——The New England Surgical Society, at its annual meeting, September 26-27, at Boston, was addressed by Drs. Richard S. Benner, Springfield, "Uterine Fibroids and Pregnancy"; Carleton R. Metcalf, Concord, N. H., "Atelectasis"; Daniel C. Patterson, Bridgeport, Conn., "A Case of Kohler's Disease"; Emery M. Fitch, Claremont, N. H., "Some Causes of Failure in the Operative Treatment of Inguinal Hernia"; Thomas N. Hepburn, Hartford, Conn., "Denervation and Displacement of the Ureter for Kidney Colic"; Paul P. Swett, Hartford, Conn., "Fractures of the Head of the Tibia Entering Into the Knee Joint," and Frederic J. Cotton, Boston, "Notes on Tumors and Near Tumors of Bone." A symposium on the vascular lesions of the extremities and a series of clinics were included in the program.

MICHIGAN

Personal.—The championship of the annual golf tournament of the Wayne County Medical Society, September 10, was won by Dr. Frank A. Kelly; the handicap championship was won by Dr. Wesley J. Reid.——Dr. Frederick Williamson was appointed health officer of Ypsilanti, September 15, to succeed Dr. Matthew E. Soller, who resigned to be connected with the extension department of health of the University of Michigan.

Society News.—At the annual golf tournament between the Kalamazoo Medical Academy and the Calhoun County Medical Society, the silver tournament cup was won by Kalamazoo physicians.——Drs. John H. McRae and Richard R. Smith, both of Grand Rapids, spoke on "Experience of Eye Work in India" and "Travelogue and Experience in India," respectively, before the Montcalm and Ionia County Medical Society at Belden, September 9.

Entrance Requirements Raised at University of Michigan.—Added entrance requirements in the University of Michigan Medical School, which will demand nearly a year of extra preparatory work, were announced, September 23, according to the Chicago *Tribune*. Candidates for the M.D. degree will be required to take ninety instead of seventy hours of credit, and one third instead of one fourth of their grades for entrance must be B's. The new ruling, it is reported, will be effective next fall.

MINNESOTA

Society News.—Dr. J. Theodore Schlesselman, Mankato, was elected president, and Dr. Monte C. Piper, Rochester, secretary of the Southern Minnesota Medical Association at its recent annual meeting.——The Chisago-Pine County Medical Society was addressed at Pine City, August 26, by Drs. Carleton G. Kelsey, Hinckley, on "Eczema of the Scrotum"; William T. Pearson, Finlayson, "Various Methods of Tonsillectomy"; Egbert J. Borgeson, Minneapolis, "Relation of Nose and Throat Infections to the Chest," and Francis F. Callahan, Pokegama, "Collapse Therapy," illustrated.

MISSISSIPPI

Tennessee Teachers to Assist Mississippi School of Medicine.—In the reorganization of the faculty of the School of Medicine of the University of Mississippi, assistance will be given by William R. Amberson, Ph.D., head of the department of physiology, University of Tennessee Medical School, and his assistants. Dr. Amberson and Arthur G. Mulder, Ph.D., will deliver special lectures, and Frederic R. Steggerda will stay in charge of the classes. Dr. Philip L. Mull, professor of anatomy, has assumed the duties of dean.

NEBRASKA

State Fair Health Program.—The health department at the Nebraska State Fair conducted by the Nebraska State Medical Association was conducted by 132 physicians this year. Periodic health examinations were given to 412 babies and children, 199 adults; eight prenatal examinations to expectant mothers, and examinations of thirty-two 4-H Club boys and girls. These examinations revealed that 91 per cent of the adults and 80 per cent of the children had defects in need of medical attention. Of the 412 babies and children examined, only 63 had been vaccinated. In the 109 audiometer tests for acuity of hearing, the average hearing loss was 9 per cent. In the system used, all examination records are sent to the family physician designated by the patient, and the patients and parents are notified to call on their physician for interpretation of the record and advice regarding treatment. The state medical association had charge of all health displays and demonstrations, which were under the direction of Dr. Edward R. Hays, Falls City, chairman of the Public Activities Committee, who has also been made superintendent of health on the state fair board. The department occupied all of the building formerly designated as the women's building. The association operated a roentgen-ray and clinical laboratory, a large room for exhibits, and a theater which was used for lectures and motion pictures. They supervised also the emergency hospital, which cared for cases of acute illness and injury. The supervision of health activities was started in 1929 (The Journal, July 29, 1929, p. 215).

NEW JERSEY

Society News.—The Atlantic County Medical Society will be addressed, October 10, at Atlantic City by Dr. Edward A. Strecker, Philadelphia, on "The Psychology of the Normal Child."——The Morris and Warren county medical societies were addressed at Bernardsville, July 16, by Dr. Richard Kovacs, New York, on "Physical Therapy in General Practice."

NEW YORK

Society News.—The First District Branch Medical Society will be addressed, October 7, at the Academy of Medicine, New York, by Drs. Elliott P. Joslin, Boston, on "Symptomatology and Treatment of Diabetes"; Frank H. Lahey, Boston, "Toxic Goiter," and John J. Moorhead, New York, "Fractures."——The Medical Society of the County of Nassau was addressed at Hempstead, September 30, by Dr. Richard Kovacs, New York, on "Use of Diathermy in Medicine and Surgery," illustrated.

New York City

Much Less Diphtheria. — Figures recently made public, *disclosed a reduction of 57 per cent each in diphtheria cases* and deaths in the city in the first eight months of 1930 as compared with the corresponding period of 1929. There were 3,003 cases of diphtheria, as compared with 7,020 in the corresponding period of last year. There were 158 deaths, as against 374 in the first eight months of 1929. It is reported that the case decrease of 4,017 and the mortality decrease of 216 sets a new record in toxin-antitoxin work. The Diphtheria Prevention Commission of the department of health has been conducting an intensive campaign against diphtheria for twenty months.

OHIO

Society News.—The Summit County Medical Society will be addressed, October 7, at the Akron City Club by Dr. John A. Kolmer, Philadelphia, on "The Serology and Treatment of Syphilis."——The commissioners of Portage County have under consideration the gift offered by the heirs of Judge and Mrs. George F. Robinson, which include the Robinson homestead and $50,000 in cash, the cash to be used with county funds for the building and equipment of a new hospital. A bond issue of $75,000 is said to be contemplated to carry the project through.——The Muskingum Academy of Medicine and the district dental association met jointly, September 10, at Zanesville and were addressed by Dr. Hugh W. MacMillan, Cincinnati, on "Oral Surgery," and Dr. Beatrice A. T. Hagen, Zanesville, anesthesia.

OKLAHOMA

Society News.—The Jefferson County Medical Society was addressed, July 7, at Waurika, by Drs. W. M. Browning, on "Rational Treatment of Abortion"; Clinton M. Maupin, "Use of Digitalis and Strophanthus in Heart Affection," and James I. Hollingsworth, "Uterine Atresia," with report of a case. ——The Tulsa County Medical Society was addressed, September 22, by Dr. Samuel C. Shepard on "Erysipelas, a New Method of Treatment."

OREGON

Society News.—A new medical journal, called the *Western Journal of Surgery*, has started publication in Portland. Dr. Goodrich C. Schauffler, the editor, states that the *Journal* will be devoted to unifying surgical interests of the western coast by publication of suitable papers, discussions, reports of surgical meetings and allied gatherings.——The Lane County Medical Society, cooperating with the Southern Willamette District Dental Society and the Lane County Graduate Nurses Association, maintained an exhibit during the Lane County fair at Eugene, August 27-30, which featured displays on periodic health examinations, dental health, quackery, and *Hygeia.*——The annual conference of city and county health officers was addressed, September 16-19, among others, by Drs. Benton C. Wilson, Medford, on "The Full-Time Health Unit"; Bertram R. Shoemaker, Roseburg, "Preventive Pediatrics"; William Levin, D.P.H., Portland, "Skin Test for Immunity and Diagnosis"; Clarence J. McCusker, Portland, "Reducing Maternal Mortality," and Paul M. Drake, Coquilla, "Diphtheria Control."

Personal.—A complimentary dinner was tendered Dr. John F. Dickson, August 28, on the occasion of his seventy-fifth birthday, by the Pacific Coast Oto-Ophthalmological Society.

TENNESSEE

University News.—The location of the new Meharry Medical College will be near Fisk University in North Nashville, with which the medical school will cooperate, but there will be no connection between the managements of the two institutions and each will keep its own identity. It is said that the new plant is to cost $2,000,000. During the past year 2,160 patients were treated in the hospital, of which 1,928 were charity and 14,103 cases were treated in the clinics.

Society News.—The Nashville Academy of Medicine was addressed, September 23, by Dr. Jefferson C. Pennington on "Significance of Urethral Discharge in the Male." The academy was addressed, September 16, by Dr. Charles Sidney Burwell on "A Clinical Study of Adhesive Pericarditis."——The Tri-County Medical Society, comprising McMinn, Monroe and Loudon counties, was addressed, September 18, at Lenoir City, by Drs. Robert C. Kimbrough, Madisonville, on "Pneumonia"; James B. McElroy, Memphis, "Ascites," and James G. Eblen, Lenoir City, who talked on "Some Diagnostic Points on Diseases in Infancy and Early Childhood."——The Bedford County Medical Society was addressed, August 21, by Dr. John W. Sutton, Petersburg, on colitis.——Dr. Jarrell Penn, Memphis, addressed the Gibson County Medical Society, September 29, on "The Commoner Orthopedic Conditions," and Dr. G. Weldon Oliver, Medina, on "Pernicious Vomiting of Pregnancy."——The Hamilton County Medical Society was addressed, September 4, by Dr. Robert C. Robertson, Chattanooga, on "Aspects of Low Back Pain: Report of Three Cases"; Dr. Olango G. Hughes addressed the society, September 11, on eclampsia.——"The Early Correction of Cross-Eyed Deformities" was the subject of Dr. David Bruce P'Pool, Nashville, among others, before the physicians of Hardin, Lawrence, Lewis, Perry and Wayne counties at Hohenwald, August 27.——The Coffee County Medical Society was addressed, September 9, at Manchester, by Dr. Charles E. Evans, Tullahoma, on "Artificial Feeding of Babies."——The Tri-County Medical Society (Carroll, Weakley, Henry and Benton) was addressed at Huntington in September by Drs. William W. Wilkerson, Jr., on "Foci of Infection"; Emmett E. Brown, Nashville, "X-Ray Diagnosis of Pulmonary Tuberculosis," and Virgil E. Massey, Huntingdon, "The Importance of a Careful History."

TEXAS

New Children's Hospital and School.—A new children's hospital, constructed by the state as a unit of the state tuberculosis sanatorium at Sanatorium was ready for occupancy, October 1. The hospital, which will accommodate 161 patients, is two stories high, 406 feet long and 60 feet wide. A feature in connection with the institution is that an eleemosynary independent school district has been formed at the sanatorium with an affiliation of the state department of education. This will afford children in the district to continue school work from the first to seventh grades inclusive. The institution is also provided with a completely equipped playground. Applicants admitted to the sanatorium are given six months' treatment; an additional three months will be extended the patient if the superintendent deems his physical condition can be found improved by this additional time. The institution will accept only children with early pulmonary or glandular tuberculosis; cases in the advanced stage of tuberculosis cannot be accepted by law. Cases of tuberculosis of bones and joints are referred to the John Sealy Hospital at Galveston.

Society News.—The Dallas Eye, Ear, Nose and Throat Society recently gave a banquet in honor of Dr. Viktor Frühwald, University of Vienna.——The Dallas County Medical Society was recently addressed by Drs. Claude E. Watson, Dallas, and Edgar Hull, Pleasant Hill, La., on "Latent Malaria" and "Management of Hypertension," respectively.——Dr. Martin L. Wilbanks, Greenville, addressed the July 8 meeting of the Denton County Medical Society on "Public Health Laws as They Pertain to Vital Statistics." Texas physicians are endeavoring to secure registration of 90 per cent of births and deaths, which is required before the state can be included in the registration area.——Dr. Allen T. Stewart, Lubbock, addressed the Lubbock-Crosby Counties Medical Society, July 1, at Lubbock, on "Eclampsia."——"Progression in Medicine" was the subject of Dr. Moses Thompson, Weatherford, before the July 1 meeting of the Parker County Medical Society.——The program of the Southwest Texas District Society, July 22-23, included addresses by the following San Antonio physicians: Harry McC. Johnson, Jr., "Diagnosis and

Treatment of Renal Tumors"; Omer M. Roan, "Intussusception of the Small Intestine Caused by Benign Tumors"; L. P. Guttman, Corpus Christi, "More Efficient Fracture Surgery by Local Anesthesia and Functional Therapy," and John V. Blair, Corpus Christi, "Endothermic Surgery as a Factor in the Treatment of Malignancy."

GENERAL

Qualifications of Nurses.—More than 4,000 physicians recently replied to a questionnaire sent out by a committee on the grading of nursing schools, as to what qualifications a nurse should have; 65 per cent of these physicians replied "skill in general care" was the requisite of a good nurse; 65 per cent wanted one that could make the patient comfortable; 45 per cent wanted one skilful in observing and reporting symptoms; 43 per cent preferred a nurse careful in following medical orders; 34 per cent said good breeding and attractive personality come first; 30 per cent skill in handling people; 28 per cent skill in asepsis; 27 per cent familiarity with hospital routine; 21 per cent familiarity with their personal methods; 15 per cent, ability to work under a heavy strain; 15 per cent, familiarity with a particular disease; 3 per cent said she should be able to take charge of the family, and 3 per cent that she should be a mother's helper and houseworker. The study shows that the demand for practical nurses is dropping. Nine out of ten physicians reported they were getting the nurses they wanted. The surgeons were the group most satisfied.

Thousands of Cases of "Jamaica Ginger Paralysis."—The U. S. Public Health Service recently announced that tri-ortho-cresol phosphate has been determined to be the probable cause of the recent "ginger jake" epidemic. The chemical is said to be widely used in the liquor and leather industries. It is colorless, odorless and capable of causing paralysis and death in the case of persons who have consumed it in alleged fluid-extracts of ginger, popularly called "ginger jake." Chemists assert that alcohol with a paralysis-producing adulterant has been used by underworld liquor manufacturers in order to make ginger extract drinkable and cheap, but deny that it could have been used as a government denaturant. According to the public health service, information received from forty-seven state health officers showed that 4,837 cases of jamaica ginger paralysis have been officially reported. It is estimated, however, that many cases were not reported officially. It is understood that the director of the bureau of prohibition of the department of justice estimates that approximately 20,000 cases of this condition have occurred in the United States. July 29, it was reported that twenty-one men, including eighteen from New York City and Brooklyn and three from Kansas, and six Brooklyn and New York corporations were indicted for conspiracy to violate federal laws following an investigation into the manufacture, distribution and sale of adulterated jamaica ginger.

Society News.—The examination of the American Board for Ophthalmic Examination will be held at the Illinois Eye and Ear Infirmary, Chicago, October 27; Dr. William H. Wilder, 122 South Michigan Avenue, Chicago, is secretary of the board.——Drs. Frank H. Ewerhardt, St. Louis, Mo., and Frederick L. Wahrer, Marshalltown, Iowa, were elected president and secretary, respectively, of the American Congress of Physical Therapy for 1931-1932 at its recent annual meeting.——The annual meeting of the Association of Medical Record Librarians of North America will be held in Philadelphia, October 13-17.——The western meeting of the National Academy of Sciences, September 18, at Berkeley, was addressed by Drs. L. Frederick Reichert, San Francisco, on "Importance of Circulatory Balance in Survival of Replanted Limbs"; Carl L. A. Schmidt, Ph.D., San Francisco, "Relation of Bile to Intestinal Absorption of Vitamin A in the Rat," and David L. Webster, Ph.D., Stanford University, Calif., "Effects of Rediffusion of Cathode Rays on X-Ray Structure."——Officers elected at the annual meeting of the Aero Medical Association in Chicago, August 29-30, were Drs. Louis H. Bauer, Washington, D. C., president; Ralph N. Greene, Jacksonville, Fla.; Frederick C. Warnshuis, Grand Rapids, Mich.; Charles H. Gowan, Glendale, Calif.; Harold M. Camp, Monmouth, Ill., and John A. Tamisiea, Omaha, vice presidents, and William B. Smith, Hartford, Conn., secretary. The program consisted of papers by Major Raymond F. Longacre, U. S. Army, presented by Dr. Harold J. Cooper, Washington, D. C., on "Factors in Examination of the Nervous System in Pilots"; Dr. Albert J. Herbolsheimer, Minneapolis, "Certain Factors in Examination of the Eyes of Aviators"; Dr. Greene, Jacksonville, "Practical Suggestions by a Pilot-Flight Surgeon," and Dr. Bauer, "Certain Aspects of Blind Flying."

FOREIGN

British Medical Association Prize.—The council of the British Medical Association proposes to award in March, 1931, the prize of £25 for the best essay attempting to "describe and discuss cases illustrating the modern methods of diagnosis of early pulmonary tuberculosis." The essay must be written by a final year medical school student or registered medical practitioner of not more than one year's standing; either of whom must be studying or must have studied at one of the medical schools in the British empire outside the British Isles. The essay must reach the medical secretary, British Medical Association House, Tavistock Square, London, W. C. 1, not later than Jan. 12, 1931.

Society News.—The thirty-ninth French Congress of Surgery will be held in Paris, October 6-11. Subjects to be discussed are: pancreatitis, introduced by Pierre Brocq of Paris, and Miginine of Toulouse; traumatic spondylitis (Kummel-Verneuil disease), introduced by Froelich of Nancy and Albert Mouchet of Paris, and preparation of patients for operation, introduced by Lombret of Lille and Sauve of Paris.——The State Institute of Public Health of Oslo, which was formally opened, August 16, includes three buildings equipped with the most modern apparatus for the speedy and exhaustive treatment of illness, and laboratories for research and for dealing with the spread of disease. The total cost of the buildings was about £195,000, of which the state contributed £83,000 and the Rockefeller Institute £61,000.——The annual meeting of the German Society for Light Research was held in conjunction with the German Hygiene Society in Dresden, September 5-7.——The twentieth Congress of the Italian Society of Laryngology, Otology and Rhinology will be held in Sardinia, October 15-23. Further information may be obtained from Prof. Deodato De Carli, Clinica Otorino-laringologica, Ospedale Gesu E Maria, Naples.——The thirtieth French Congress of Urology will be held at the Paris Faculty of Medicine, October 7. A discussion of renal contusions and their remote sequels will be introduced by Dr. Gérard of Lille.——The Society for Digestive and Metabolic Diseases will hold its tenth annual meeting in Budapest, October 6-8.

CORRECTION

Tuberculosis in England.—The statement of the London correspondent in The Journal, August 2, that every week 70,000 cases of tuberculosis were notified in England and Wales was erroneous. The Ministry of Health has called attention to the fact that 70,000 cases are approximately the number notified in the course of a year.

Government Services

Change of Station in the Navy

The following changes of station in the navy have recently been announced: Lieut. John G. Smith, to the naval hospital, Newport, R. I.; Lieut. William S. Cann, to division 10, destroyer squadron; Lieut. Frederic W. Farrar, to the U. S. S. *Dobbin;* Lieut. Charles W. Shilling, to division 42, destroyer squadron, scouting fleet; Lieut. Comdr. David Ferguson, to the Navy Yard, Pearl Harbor, T. H.; Lieut. John P. Wood, to the Naval Hospital, Great Lakes, Illinois; Lieut. Richard B. Blackwell, to the marine recruiting station, Philadelphia; Lieut. Carr E. Bentel, to the Asiatic Station.

Army Personals

Lieut. Col. William S. Shields, from Fort Sam Houston, Texas, to Fitzsimons General Hospital, Denver; Major Luke B. Peck, having attained the age of 64 years, is retired from active service and placed on the retired list with the rank of lieutenant colonel; Major Philip P. Green, on completion of his present tour of foreign service, will be assigned to duty at Fitzsimons General Hospital; Lieut. Col. Henry C. Coburn, Jr., from Fitzsimons General Hospital to Fort Sam Houston, Texas; Major Clyde C. Johnston, from Selfridge Field, Mount Clemens, Mich., to Kelly Field, Texas; Major Brown S. McClintic, from Fort Benjamin Harrison, Ind., to Fort Sheridan, Ill.; Capt. James A. Ramsey, from the St. Louis Medical Depot, St. Louis, to Fort Sam Houston, Texas; Major Joseph C. Breitling, from Fort Lewis, Wash., to Chilkoot Barracks, Alaska.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 13, 1930.

The Socialization of the Medical Profession

In a previous letter (The Journal, August 16, p. 543) the adoption by the British Medical Association of a scheme in which a full medical service is to be provided by the state for every person, i. e., the completion of the socialization of the medical profession, was described. It was explained that such socialization was desired neither by the profession nor by the association, but that in the present socialistic phase of British politics such a development was thought inevitable and that it was held to be better for the profession to bring forward a scheme than to have one imposed on it. But this momentous decision is viewed with considerable misgiving by a large minority of the profession, including those who have always regarded the national insurance act as anathema. Their objections were ably voiced by Dr. Graham Little, a dermatologist, who is member of parliament for London University and therefore a prominent figure in medical politics. In an address to the Paddington Medical Society he said that the profession was at the parting of the ways and decisions were about to be taken even more important than that of 1912, when that great step in medical socialism, the national health insurance scheme, came into operation. This was copied by Mr. Lloyd George from the German scheme, and it is interesting to recall that after prolonged discussion it was rejected by the British Medical Association as detrimental to the interests and honor of the medical profession. Then came the coup of Lloyd George who, by increasing the capitation grant, caused a number of physicians to break away from the combination and thus overcome the resistance. Dr. Little described the issue as none less than whether the profession should consent to the extermination of private practice and to the substitution for it of practically universal contract service or universal state medical service. The difference between the two alternatives might not be great, for if contract practice became universal the state would dominate as much as it would any state medical service. He had information that the present socialist government had in preparation a scheme for a state medical service with influential support. The rumor of this had clearly influenced those who controlled the British Medical Association. At the representative meeting resolutions promoted by the council recommending the institution of what amounted to a general panel for the nation, were passed by large majorities. This was brought about by representations by leading members of the council that the alternative for the profession was not private practice or contract practice, because private practice was no longer a tenable proposition, but that the choice lay between the policy promoted by the association and a State service. This policy, said Dr. Little, would bring seven eighths of the whole population into the panel, and private practice would become too precarious to survive for any time. Further, the national health insurance fund was practically bankrupt. It had never been able to furnish the services which the government commission had declared ought to be given — institutional and specialist treatment. Would universal panel practice improve the status of the profession or the conditions of life of the physician? It would be conducted under the continual harassment of outside control. At present the physician had to satisfy patients; under the new régime he would have to satisfy an administrative superior, whose first consideration would seldom be the patient. Medical insurance encouraged recourse to the physician when unnecessary and, as people did not prize what they did not pay for, the services of the physician were less valued. By our system of doles and mollycoddling we were converting our people into loafers and hypochondriacs.

Dr. Little's address has made a great stir and has received lengthy notices in the daily press, by which the belief is expressed that for some time the government has intended to nationalize the medical profession and that alarm caused by this rumor has led the British Medical Association to formulate its scheme. In a press interview with the *Star*, Dr. Little said that he had no doubt that before we realize it we shall have foisted on us an unworkable scheme of automatic medical treatment, good neither for the patient nor for the physician, who would become a civil servant working so many hours a day, with no incentive to become more useful to the world and probably with no opportunity of doing so. But he admitted that the younger generation of physicians might prefer a regular life of work and leisure and a regular income. The *Star* representative could not find any one who could suggest how state doctoring would work out in practice. Would it be illegal to fall ill outside certain prescribed hours? Would the physicians work in shifts and if so what would be the position of the patient who called in his physician three times during the day and night and found himself in the hands of three different men?

Sir Ronald Ross

"Probably the greatest genius living in our times" was the description of Sir Ronald Ross by Sir Aldo Castellani, director of tropical medicine at the Ross Institute. The occasion was a luncheon at the institute to celebrate the death thirty-three years ago of the mosquito in which Sir Ronald Ross discovered the infectious agent of malaria. Sir William Simpson, director of tropical hygiene at the institute, said that Ross's discovery would always be memorable in preventive medicine. It had saved millions of lives and was bound to save millions more. It was the work of a genius who did not confine himself to medicine but was also a poet and mathematician. But the one thing he could not do was to make money. The British government had treated him shabbily in conferring no reward on him, as had been done on Jenner. Sir James Barr said that because of this refusal a fund had been raised by private subscription, which was still growing. Amid laughter he recalled how an American admirer of Ross's poetry had cabled to the prime minister asking him to appoint Ross poet laureate, when the appointment recently became vacant by the death of Bridges. An American physician, Dr. Robert Pitfield, said that by this time next year America would have contributed several thousands of pounds to the fund. Sir Ronald, who is 73, was looking remarkably well. The hymn of praise, written by him in India after his great discovery, was printed on the menu.

Physiologic Observations on the Kanchenjunga Expedition

The recent attempt to climb one of the highest mountains in the world, Kachenjunga (28,150 feet), resulted in certain observations of physiologic importance. Altitude was found to impair digestion, so that a careful choice of food had to be made. At heights over 20,000 feet, light sugary foods were found most suitable, such as jams, biscuits, chocolate, sugar, canned fish and fruit, and condensed milk. A little alcohol was found to be a great aid to digestion. Hot rum at bedtime was found the best drink to promote sleep. The general health of the expedition was cared for by Dr. Richter who attempted to combat the deleterious effects of altitude by bloodletting, as he considered that the relation of the normal blood pressure to the low pressure of the atmosphere was responsible for headache and mountain sickness. Only two members of the expedition submitted to having 200 cc of blood withdrawn. As they were both subsequently taken ill it was considered doubtful whether the experiment resulted in any good. More successful was the daily administration of liver in the form of pills, to assist in the increased formation of hemoglobin, which takes place as part of acclimatization at high altitudes. Though oxygen should be carried on such expeditions for medical purposes, its use to assist climbing at high altitudes was not a success. It stimulated the body for a short time but the subsequent reaction was severe. The weight of the apparatus prohibited prolonged use and by tiring the climber neutralized the good effects. The secret of high climbing was found to be slow acclimatization, which was best effected by living as comfortable as possible at a height of 20,000 feet. Here appetite is unimpaired and sound sleep is possible.

The Origin of the Alphabet

In the Section of Anthropology of the British Association, Sir Richard Paget, who is well known for his studies of the positions of the lips, tongue and mouth in producing sounds and for the production of working models which reproduce these sounds, developed further the old theory that the development of alphabets has been influenced by sympathy between the human mouth and tongue and the human hand. As long ago as 1667, von Helmont put forward this theory with respect to the Hebrew alphabet. In 1902 Mr. Rudyard Kipling, probably independently, suggested mouth-shaped origins for the letters a, o, u, m and g. Sir Richard Paget pointed out that the alphabet was generally supposed to have been derived by simplification of preexisting pictographs, by adopting the picture of some word beginning with a given vowel or consonant as the alphabetic sign for that vowel or consonant. Thus the alpha of the Greeks was derived from the Egyptian sign called "alf," which represented the head of an ox with his horns. But the difficulty arises that there were in Egyptian at least fifty hieroglyphs for words beginning with the letter a. Sir Richard Paget suggested that the early scribes, in their search for suitable symbols, were unconsciously affected by a sympathy of movement between their tongues and mouths and their hands; they therefore selected those pictographs in the drawing of which the hand followed a direction which most closely followed the track of the tongue and lips in uttering the sound in question. He found evidence of this sympathy even in the Sumerian cuneiform writing. He gave examples from our own alphabet of the shape of letters representing the position of the mouth and lips in forming the sound.

Herbert William Carson

The death at the age of 59 of Mr. H. W. Carson removes a surgeon who was well known to Americans because of his work in postgraduate teaching. He was one of the organizers of the London meeting of the Interstate Medical Association and in 1929 he delivered the Mütter lecture to the College of Physicians of Philadelphia, in which he dealt exhaustively with intestinal obstruction from the historical, clinical and operative standpoints. Educated at St. Bartholomew's Hospital, he was appointed assistant surgeon to the Prince of Wales's Hospital, Tottenham (in north London) where he combined ear, nose and throat with general surgery. He was active in the organizing and subsequent working of the North East London Post-Graduate College, which was formed in connection with his hospital, and later in the work of the fellowship of medicine. He was especially concerned with the overseas part of the work of the fellowship and visited Canada in order to inform himself of the needs of physicians there. He became chairman of the executive committee of the fellowship and was appointed to the provisional organization committee of the new British Postgraduate Hospital. He was best known as an abdominal surgeon and edited and largely contributed to "Modern Operative Surgery," published in 1924. He edited also the tenth edition of Pye's "Surgical Handicraft." He was an indefatigable worker and lucid teacher.

PARIS

(From Our Regular Correspondent)

Sept. 10, 1930.

Titrable Forms of the Bacilli Typhosus and Paratyphosus

Studies on the filtrable forms of various micro-organisms are overthrowing many conceptions of hygiene that were regarded as definitely established, so that the whole epidemiology of many infectious diseases has to be restudied. Typhoid and paratyphoid bacilli normally do not pass through porcelain filters. Under the influence of the bacteriophage, they take on a filtrable form and later, when introduced into the organism, they again assume their bacillary form. Mr. P. Haudroy found these invisible forms in the stools and in the blood of typhoid patients, and in polluted waters. These invisible forms in polluted waters transmit typhoid and paratyphoid fevers, and the absence of bacilli in such waters will give henceforth no sense of security. The same conclusion applies to germ carriers, for they may remain for a long time infectious, though they present no visible bacilli, provided they still harbor invisible and filtrable forms. It is even probable that there are typhoid septicemias without bacillary forms in the blood.

Tuberculous Ultravirus in Blood of Patient with Tuberculids

In 1929, P. Ravaut, Valtis and F. van Deinse demonstrated the presence of tuberculous ultravirus in the lesions of papulonecrotic tuberculids and in a case of subcutaneous sarcoids. Pursuing their researches further, they have now discovered that the blood of a patient affected with papulonecrotic tuberculids, inoculated in the guinea-pig at two different times, with an interval of eight months, provokes lesions similar to those produced by the inoculation of tuberculous ultravirus. Four successive reinoculations, from animal to animal, showed in each case the presence of tubercle bacilli in the glands. This fact tends to prove that papulonecrotic tuberculids are the result of a septicemia caused by the tuberculous ultravirus. The authors conclude that these facts are evidence of the different evolution of the various types of tuberculosis of the skin, tuberculids being due to tuberculous ultravirus and lupus to the bacillary form of the Koch bacillus.

Contradictory Results from Suprarenalectomy

In a case of thrombo-angiitis obliterans, Professor Leriche of Strasbourg removed a suprarenal capsule. The result was immediate; the pains that had become intolerable ceased at once and an incurable ulceration of the great toe scarred over rapidly. During the five years elapsing since the operation, there has been no recurrence and the patient is in perfect health. There is, however, a slight claudication of the leg after the patient has walked a kilometer. Mr. Monnier-Vinard decided to apply the same operation to a subject affected with permanent arterial hypertension, in whom all forms of treatment had failed. There was only a transient and insignificant lowering of tension. The permanent result was nil. Radiotherapy of the vertebral column was also ineffective. These trials prove at least that man can live perfectly well with a single suprarenal capsule.

Trypanosomiasis in Africa

The unsatisfactory results secured in French Equatorial Africa, which is gravely infected by trypanosomiasis, are due in part to the scarcity of native workmen and in part, according to Mr. G. Muraz, to the insufficient number of physicians. A complete reorganization of the medical service has been decided on by the governor of the colony. The new trypanosomiasis service in French Equatorial Africa will comprise twenty-eight prophylaxis sectors, with twenty-one physicians, twelve assistant hygienists, nine European agents and 152 native male nurses. It will thus become possible to reach most of the persons affected with trypanosomiasis and to treat them either with atoxyl or with tryparsamide. Arsenoresistant patients must be recognized. In a limited region about Mayumbe, this arsenoresistance is extending to an ever widening area. Mr. A. Sicé publishes a number of observations with graphs showing that lumbar puncture is indispensable in trypanosomiasis patients in order to make a definite diagnosis, establish the diagnosis, and control the treatment. According to Mr. Lui, a physician who has made a special study of trypanosomiasis cannot get away from the idea of multiple indications for lumbar puncture. He has performed more than 10,000 rachicenteses in trypanosomiasis patients, this control being applied every three months the first year, every six months the second year, and then once a year. The number of leukocytes per cubic millimeter sometimes exceeds 2,000, and the albumin content may range around 2 Gm. per thousand.

First Aid at Children's Playgrounds

The public squares of Paris that serve as playgrounds for children are often the scene of slight accidents that occur during their games. A proper hygienic treatment of even small lesions serves as an excellent practical lesson for the child himself. As the nearest pharmacy may be some distance away, one often sees, in such cases, playground assistants, with the best of intentions, endeavor to cleanse the wound with a soiled handkerchief impregnated with their saliva, and cases of syphilis have been known to be transmitted in such manner. At a recent meeting of the municipal council of Paris, Mr. Georges Prade, a member of that body, requested the prefect to issue an order that the *kiosques,* which are found at all the playgrounds and at which toys and cakes are sold, shall have for sale, at a reasonable price, such articles as are likely to be needed for first-aid treatment: dressings, gauze, surgical cotton, bandages, tincture of iodine. The prefect made some objections to the request, pointing out that it is to be feared that the pharmacists' syndicate will defend the privilege of its members, who have the sole right to sell to the public all internal and external remedies.

BELGIUM

(From Our Regular Correspondent)

Sept. 13, 1930.

Proposed Ethical Order of Physicians

A bill filed, April 23, 1929, with the bureau of the senate, contemplated the creation of distinct councils for the physicians, the dentists, the pharmacists and the veterinarians. The bill was discussed in The Journal, Aug. 24, 1929, p. 627. Mr. Baels, minister of the interior and of health, has filed an amended bill changing completely the first proposal and a new bill providing for the creation of an ethical order of physicians. The amended bill no longer mentions the creation of councils of physicians but provides merely for the establishment in each province of a council of pharmacists, a council of dentists and a council of veterinarians. The new bill providing for the creation of an ethical order of physicians is accompanied by a brief statement of the motives:

> The creation of an ethical order of physicians is more closely in harmony with the aspirations of the medical profession than the medical councils would be. Moreover, the new institutions such as are provided for by the new bill will stimulate, more than the medical and allied professional councils could have done, esprit de corps, fraternal spirit and discipline. This result will be still further strengthened by the creation of the superior council of the ethical order.

The principal sections of the proposed bill are as follows:

Section 1. There is hereby created, in each province, an [ethical] order of physicians, which partakes of a civil character and which will have its seat in the chief town of the province.

Section 2. The [ethical] order of physicians will consist of all doctors of medicine, surgery and obstetrics enrolled in the register of physicians. All persons domiciled in the province and authorized to practice medicine are enrolled in the register. The register of physicians is compiled annually under date of January 1 and is published before February 1.

Section 3. No one can practice medicine unless he is a member of the [ethical] order of the province in which he is domiciled.

Section 4. The physicians enrolled in the register elect by secret ballot a council of the order, which shall comprise at least five and not more than nine members and an equal number of alternates.

Section 7. The presidents of the nine councils of the order constitute the superior council of the order of physicians of Belgium. The seat of the superior council will be at Brussels. The council will elect from its own membership a president and a vice president, and it will choose a secretary.

Sections 8 and 9 establish the jurisdiction of the provincial councils and of the superior council of the order. They have jurisdiction over all infractions of medical ethics and of matters having to do with charlatans, but exclusive of questions pertaining to fees and to pecuniary interests.

Section 10. The penalties that the council of the order may impose are warning, censure and reprimand. Only the superior council of the order can suspend the right of a physician to practice medicine and that for a term not to exceed one year; only the superior council can cancel permanently a physician's license to practice, and remove his name from the register of physicians.

Section 11. The penalties cited in section 10 can be imposed only after the accused has been given a hearing or has been summoned at least twice, with an interval of fifteen days. The practitioner may use fifteen days to prepare his defense and he shall have the right to employ counsel.

Section 13. Any decision imposing a disciplinary penalty may be appealed within eight days of the date pronounced or of the signing of the decision if rendered by default.

An appeal from the decisions imposing a warning or censure is heard by the council of the order; an appeal from a decision imposing a reprimand is brought before the superior council of the order; in an appeal from a decision imposing suspension or exclusion from the medical register, the court of appeals having jurisdiction will hear the case.

Section 21. The first elections for the creation of the council of the order will be from the list of persons authorized to practice medicine in a given province and published in execution of the royal decree of May 31, 1880, reorganizing the medical commissions of the provinces.

The council of the order will prepare the register of physicians within a month after the election or after the ratification in case the election is contested.

The remaining provisions of the bill regulate various secondary formalities and leave to a royal decree the care of regulating diverse questions of practical application.

Tuberculosis of the Digestive Tract

At a meeting in connection with the Journées médicales de Bruxelles, by the Sociétés belge et française de gastroentérologie, Dr. Brohee discussed symptomatology, diagnosis and treatment of tuberculosis of the digestive tract. Tuberculosis of the digestive tract is usually subjected to a purely medical treatment, which is frequently ineffective. Patients are, as a rule, referred at a late stage to the surgeon by reason of such complications as tumor, stenosis, perforation, occlusion, diarrhea, peritonitis or fistula.

Tuberculosis of the digestive tract is most frequently secondary to pulmonary tuberculosis. It is often grafted on parasitic lesions and coincides sometimes with a neoplastic formation.

Phthisiologists should have their attention called to: (1) the frequency of complicating lesions of the digestive tract during the evolution of pulmonary tuberculosis; (2) the possibility of an early diagnosis, and (3) their amenability to rational surgical intervention, applied as soon as possible after the beginning of the specific local lesion.

Tuberculosis of the stomach, duodenum, liver, bladder and pancreas do not have any specific symptomatology. Certain hypothetic signs have, however, been suggested. It is therefore impossible, until new research has been made, to make an early diagnosis of these conditions. Fortunately, the disorders with which they may be confused are in the nature of surgical disorders. Intestinal tuberculosis, on the contrary, has benefited greatly from clinical research. The symptoms of jejunal, ileocecal and colonic tuberculosis are better known. Increasing pains, appearing in recognized tuberculous patients, cause one to suspect specific intestinal lesions. Coprologic studies are not of much help, unless in a very late stage. In recent years, radiologic studies have made it possible to set up a series of direct and indirect symptoms that permit an early diagnosis. The medical treatment has nearly always proved ineffective from the curative point of view. Surgical treatment, which has many good results to its credit, should have its indications extended. Radical operations (exeresis) should replace, more and more, palliative operations. This result will not be attained without the aid of phthisiologists and the application of the principle of an early diagnosis.

Tuberculosis and Anthracosis

In the *Revue belge de la tuberculose,* Dr. Stassen gives an account of anthracosis. Clinicians and investigators present two widely different conceptions; some refer to the impregnation of the pulmonary tissues by coal dust whereby the lungs are said to be protected against tuberculous infection; while some speak of tuberculous infection generating a black pigmentation of the lungs, without the coal dust assuming necessarily any rôle whatever in the clinical picture. This disagreement, the author maintained, is due to the fact that sufficient research has not been devoted to the working conditions of patients in the mines. In the light of experience acquired in the mine, he seeks to present the problem in its true light.

The coal dust found in the sputum of miners with anthracosis is by no means identical with the fine carbon deposit produced by lamps that smoke, which many investigators have used in the production of pulmonary anthracosis. The former has component parts of very unequal size. Some of the particles are from 150 to 160 microns in diameter, and are consequently much larger than the largest cells of the organism that might envelop them. Some particles are amorphous; others have a structure similar to that found in the lower orders of plant life. Sometimes they are composed of iron or sulphur. The miners work generally under hygienic conditions that explain the large number of pulmonary disorders among them: absence of sunlight; deficient oxygen due to poor ventilation; confined air; toxic atmosphere; repeated chills produced by the drafty and relatively cold galleries. Pharyngitis, bronchitis and pneumonia occur, causing a diminution of their mechanical means of defense against the inhalation of coal dust. Following the course of defective bronchial trunks and branches, deprived of cilia, the coal dust is deposited and gradually accumulates. The masses formed in the pulmonary alveoli and the branches of the bronchi may remain quiescent or they may be points of attraction for microbic organisms. These may cause a virulent acute infection and death as a result of pulmonary edema, or they may give rise to a slowly developing infection that will produce bronchitis, pleuritis, areas of condensation or pulmonary cavities.

Nevertheless, tuberculosis is extremely rare in miners with anthracosis. In 1,204 miners having chronic respiratory disorders, examined since 1924 at the Dispensaire de l'espérance or at the Institut provincial de physiopathologie du travail, in Liége, the results were as follows:

	Number of Cases	Per Cent
Chronic bronchitis, with acute and repeated attacks.	688	57.0
Bronchitis; tuberculosis suspected but not confirmed	31	2.5
Chronic bronchitis, emphysematous at the start.....	196	16.5
Chronic asthmatic bronchitis.....................	99	8.5
Chronic emphysematous confirmed bronchitis.......	134	11.0
Cardiac disorders with pulmonary stasis..........	9	0.7
Pulmonary tuberculosis (bacilli in sputum)........	13	1.0
Pulmonary sclerosis following absorption of dust...	11	1.0
Pulmonary sclerosis resulting from intoxication by gases	7	0.5
Anthracosis (black sputum)......................	12	1.0
Bronchiectasis, pulmonary gangrene.............	4	0.3

Malignant Tumors in the Congo Natives

Contrary to the usual belief, there is no immunity to cancer among the black races. While malignant tumors are more rare, better organized medical research has revealed an increasing number of cases. Dr. Guillot (Belgian Congo) recalls the statistics published by Dr. Mouchet in 1926, which contain accounts of thirty-four malignant tumors found by physicians working among the natives of various regions of the Congo. Of these thirty-four tumors, one was a mixed tumor, twenty-one were epithelial and twelve were of the connective tissue. Six observations published by the author bear out this proportion of epithelial tumors with relation to tumors of the connective tissue, and confirm the conclusion of Dr. Mouchet that the black race, far from being refractory to cancer, presents all the forms of tumors encountered in the white race.

International Exposition of Dental Hygiene

The International Exposition of Dental Hygiene was organized in connection with the session at Brussels of the Fédération dentaire internationale. The purpose of the exposition was to show the methods of instruction with respect to dental hygiene and dental prophylaxis and to bring out the results secured in the countries in which these methods have been applied. The most important sections were those of Scandinavia, the Netherlands, Germany and England. The Scandinavian exhibit was remarkable. Prepared by an ardent advocate of dental hygiene, Dr. Brun of Oslo, it served as an exemplification of technical methods and publicity measures and brought out the great progress made in Scandinavian countries in combating the social evils growing out of dental disease.

Germany's exhibit consisted essentially of a traveling museum of dental anatomy and pathology, for the use of schools and centers for popular education. Wall maps showed the development of dental clinics and hygienic centers in Germany.

The Netherlands presented, in addition to a traveling museum similar to that of Germany, various publicity devices: posters, drawings, photographs and transparencies.

England sent representatives of the Dental Board of the United Kingdom, together with a complete traveling museum, publicity tracts and posters.

The University of Bonn sent an interesting series of wax molds, or casts, pertaining to the prophylaxis of the gums; also fixed prostheses and illustrative of methods of treating maxillary malformations.

France was represented by exhibits from the cities of Strasbourg and Saint-Etienne, and by the dental dispensary of the Ecole odontotechnique de Paris.

The Belgian exhibit was prepared under unfavorable circumstances. In matters of dental hygiene and prophylaxis, we are not abreast of other nations. Nevertheless, the organizers of the Belgian exhibit succeeded, after difficulties, in collecting some interesting material. The army medical service presented photographs of its hospital dental clinics. The Association générale des dentistes de Belgique displayed the activities of the dental school and dispensary.

JAPAN

(From Our Regular Correspondent)

Aug. 1, 1930.

A Method for Vaccination Against Smallpox

A new method for vaccination against smallpox, which will leave no trace on the skin, has been contrived by Dr. H. Yaoi, a bacteriologist in the government institute for infectious diseases. In 1924 he began to study the cause of smallpox in cooperation with Mr. H. Kasai, a veterinary surgeon in the institute. The results of the vaccine injected in 500 cases have been excellent.

A Census of Infectious Disease

The second general census is to be taken, October 1, and the sanitary bureau of the home ministry has directed that, in case of infectious disease, data will be collected by the police. The main purpose of the census is to obtain statistics on unemployment and the causes of the deaths in each family.

Trachoma Among Immigrants

A conference was held in Tokyo to investigate the trachoma problem of immigrants, especially those from Brazil. The committee consisted of the authorities from the four departments of the cabinet: the interior, foreign affairs, plantation and communication. It was decided to deliver a citation to the local governments to the effect that the health officers there should make more careful physical examination of the immigrants and that passports should not be issued without strict examination.

Children Born in the Year of the Earthquake

It is worthy of noticing from a medical point of view the results of the physical examination of the children born in Tokyo in the year of the great earthquake in 1923. The Tokyo authorities undertook to investigate the influence, mental and physical, caused by the disaster on the poor children. For this purpose 30,474 children were examined; 0.59 per cent are poorly developed mentally, and 0.28 per cent physically; 14,981 of the children, or 49.16 per cent, are diseased, 640 of whom have swollen cervical glands, 2,026 carious teeth. Generally speaking, the number of children weak mentally and physically is larger, though not considerably larger, than that of the years before.

Meetings

Dr. S. Horiguchi, captain surgeon, will be sent as delegate to the thirty-eighth general meeting of the Army Military Surgeons Association of the United States, which will be held in Washington, September 25.

Dr. Majima, member of the Tokyo Municipal Assembly, has been sent as a Japanese delegate to the international birth control union meeting, which will be held at Zurich, September 1. He left Yokohama, July 31, on the *Empress of Russia.*

The Most Disastrous Diseases

Mr. Y. Nakagawa, of the social bureau in the home department, stated in a lecture before the Research Society for Industrial Health that tuberculosis, venereal diseases and trachoma are the three most disastrous diseases in our country. They are especially of great consequence to workmen and laborers in the factories and mines. Though the regulations for the prevention of tuberculosis and trachoma were published by the government years ago and the antivenereal disease regulations were put in force three years ago, many workers and miners are still suffering from these diseases, which claim many victims year after year. According to figures published by the statistics bureau, 44,033 factories and workshops and 1,144,716 workers were protected by government health insurance in April, 1927, and 40 per cent of them were male. This year 3,321,234 insured have been treated by insurance physicians; 18,624 were inpatients. Tuberculosis cases numbered 628, which is 3.66 per cent of the insured inpatients and 60.35 per cent of the three national disease cases. Venereal disease cases numbered 270, which is 1.45 per cent of the insured inpatients and 23.90 per cent of the three national disease cases. Trachoma cases numbered 178, which is 0.96 per cent of the insured inpatients and 15.75 per cent of the three national disease cases.

Dr. Arima to Lecture Abroad

Dr. Arima, chief of the Arima Sanatorium in Osaka, has been invited to lecture before the Natural Science Society and the general medical meeting at Königsberg University, September 6 to 11. His subject will be "Special Treatment for Tuberculosis and My Investigation." He will also lecture in Moscow on his way to Germany, and after the meeting will make a two months' trip in Europe.

BERLIN

(From Our Regular Correspondent)

Sept. 15, 1930.

Progress of the Lübeck Investigation

Following the declaration of July 8, the federal ministry of the interior, under date of September 10, has published the following statement with regard to the progress that is being made in the investigation of the causes and conditions that led to the death from tuberculosis of more than sixty infants, in Lübeck, who had been inoculated with the B C G vaccine against tuberculosis:

The scientific investigations that have been carried on in the bureau of the federal health service, by Prof. Dr. Ludwig Lange, have produced these results:

1. The epidemiologic course of the cases of morbidity and the fatal cases shows marked periodic fluctuations, which bring out the fact that the vaccine materials that were prepared and administered at different times had a varying pathologic action. In contrast with certain periods with comparatively high morbidity and high mortality, there are others with a slight morbidity and with an absence of mortality, up to the present time.

2. The culture which was sent to Lübeck by the Pasteur Institute, which was cultivated further, after its arrival, on fluid mediums, and which was not used for the preparation of vaccine materials, has been found, on investigation, to be a pure B C G strain, without virulence for guinea-pigs.

3. Of the remaining B C G cultures from Lübeck, which were available for the government investigation, the oldest cultures (prepared in Lübeck, the middle of March, 1930) belonged to an inoculation period in which only a comparatively small percentage of the children were taken ill and none died from tuberculosis. The younger cultures, grown in the second half of April, 1930, had not been used for the preparation of vaccine materials. They were, however, included in the investigation. From the results of animal experiments, all these cultures have been freed of any suspicion of having consisted mainly or entirely of virulent tubercle bacilli. It appears likely that they were pure B C G cultures. The investigations are not, however, sufficiently advanced to state positively whether or not they contained *occasional* virulent tubercle bacilli.

4. In addition to these culture tubes, some remnants of four culture emulsions (vaccine material) used in the inoculation of children were brought into the investigation, two of which belong with certainty to vaccination periods presenting high morbidity and high mortality figures. The investigation of these vaccine materials, which the bureau of the federal health service did not receive until later, is still under way.

5. For the investigation there was another culture available that was derived from a guinea-pig which Professor Deycke had inoculated, March 6, with a supposedly pure emulsion of his B C G culture that he had cultivated in Lübeck on solid culture mediums. This culture, which was started, April 17,

showed, on examination at the bureau of the federal health service, high virulence for guinea-pigs but slight virulence for rabbits. Its behavior corresponds, therefore, to that of a culture of human tubercle bacilli.

Another guinea-pig, which was inoculated by Deycke, in Lübeck, April 17, with a different B C G emulsion, likewise supposed to be pure, had been brought alive to Berlin and, on being killed 109 days later, was found to be highly tuberculous. Researches on the exact behavior of this culture are still being carried on.

6. The portions of organs, which were taken at necropsy from the infants who had died from progressive tuberculosis and inoculated into guinea-pigs, produced in these animals progressive tuberculosis. Likewise, the cultures grown directly from such portions of organs show, according to the results of previous researches, high virulence for guinea-pigs but slight virulence for rabbits. The behavior of these cultures corresponds thus to that of a culture of human tubercle bacilli.

7. From the results of recent researches it is evident that the B C G culture furnished from Paris was unobjectionable in every respect and was not virulent.

To discover how the pathogenic and fatal action of so large a portion of the vaccine materials injected into the infants in Lübeck was brought about, researches are still in progress. The investigators are seeking to determine whether, through error or through the use of certain culture mediums, a contamination of the B C G culture with virulent tubercle bacilli occurred, or, on the other hand, whether or not a biologic metamorphosis may be suspected. In order to reach, as far as it is humanly possible, an unequivocal judgment in these matters, further comprehensive scientific researches must be carried out. The task proposed has been made more difficult, and its execution has been delayed, by the fact that the vaccine materials used in Lübeck for the inoculation of infants have been shown to be of a varying quality, for which reason they possessed a variable pathogenic action. This circumstance has made necessary a more comprehensive series of researches.

Health Services of Life Insurance Companies

For a number of years, many German life insurance companies have conducted a health department for the benefit of their policyholders. Persons insured for certain amounts have been granted, at certain intervals, special examinations and have been given medical advice as to the care of their health. This service has recently been extended by one large insurance organization. Persons who, for the preservation or lengthening of their life, are obliged to undergo a surgical operation are, on request, granted a special sum, without interest, to aid them in paying the costs of the operation. This aid, which takes the form of a non-interest-bearing prepayment of a portion of the sum for which the person is insured, is considerably higher than the regular loan value of the policy, for which interest is charged if a loan is made.

Rights of Physicians in the Choice of a Residence

Differences and misunderstandings constantly arise owing to the fact that one physician endeavors to take an apartment in a building in which another colleague resides. Consequently, the executive committee of the Gross-Berliner Aerztebund has published the following decision:

> A physician may not be allowed to take up his residence in an apartment building in which another physician having the same specialty already resides, without first securing the consent of that physician. On the other hand, it is not permissible that a physician shall enter into a contract with a house-owner, whereby the house-owner agrees to rent to no other physician a dwelling, for the practice of medicine, which is located within the same block. However, if an agreement of such a nature is made in which the area involved is that of an ordinary Berlin apartment building, even though it is, in a way, subdivided, or, for given reasons, actually forms two houses, it shall not be called into question.

Marriages

Charles Lee Quaintance, Queens Village, N. Y., to Miss Elizabeth Mary Coffey of New York, in August.

William H. Schowengerdt, Champaign, Ill., to Miss Minnie Berg of Bisbee, N. D., August 26.

William Robert Whiteford, Lieut., U. S. Navy, to Miss Mary Belle Harrison, August 27.

Ben Hamilton Nicholson, Nashville, Tenn., to Miss Winifred Tucker, September 2.

Kirby A. Martin, New York, to Miss Edna Peters, August 30.

Deaths

Emory Graham Alexander ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1904; member of the American Surgical Association and the American College of Surgeons; assistant professor of surgery, University of Pennsylvania School of Medicine; served during the World War; on the staffs of the University, Abington (Pa.) Memorial and the Episcopal hospitals; aged 50; died, August 29, when he severed his jugular vein with a pocket knife.

Asa Barnes Davis ⊕ New York; Medical Department of Columbia College, New York, 1889; member of the American College of Surgeons; member and past president of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; since 1918 chief surgeon of the Lying-In Hospital; aged 69; died, August 13, in St. Luke's Hospital, of angina pectoris.

Charles Moir ⊕ Louisville, Ky.; University of Louisville School of Medicine, 1898; at one time professor of pediatrics, Kentucky School of Medicine; formerly on the staffs of the Louisville City Hospital, St. Anthony's Hospital and the Kentucky School of Medicine Hospital; aged 66; died, July 8, in Lakeland, of endocarditis.

Oscar R. Tomlinson ⊕ Tate Springs, Tenn.; Tennessee Medical College, Knoxville, 1892; Bellevue Hospital Medical College, New York, 1894; past president of the Hamblen County Medical Society; aged 60; died, August 27, in a hospital at Fort Sanders, of complications, following an operation for appendicitis.

Joseph Tait Smith, Princeton, N. J.; University of Maryland School of Medicine, Baltimore, 1872; member of the Medical and Chirurgical Faculty of Medicine; formerly associate professor of hygiene and clinical medicine at his alma mater; aged 80; died, in May, in Cleveland, of carcinoma of the prostate.

Effie Alberta Read, Washington, D. C.; George Washington University Medical School, Washington, 1912; assistant chief of the micro-analytical laboratory of the bureau of chemistry, department of agriculture; aged 57; died, September 1, of carcinoma of the ovary with general metastases.

John Howard Thompson, Mescalero, N. M.; Medical College of Ohio, Cincinnati, 1881; past president of the El Paso (Texas) County Medical Society; formerly member of the school board in El Paso, Texas; aged 79; died, May 14, in El Paso, Texas, of cardiac infarction.

Orlando L. Sutherland, La Porte, Ind.; University of Michigan Homeopathic Medical School, Ann Arbor, 1891; member of the Indiana State Medical Association; aged 70; died, August 10, in the Presbyterian Hospital, Chicago, of pneumonia, following an operation.

J. Arthur Mullins, Marlow, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1911; member of the Oklahoma State Medical Association; aged 50; was found dead, August 11, of burns received when the gasoline tank in his automobile exploded.

Louis Brinton Yerger, Wilmington, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1914; member of the Medical Society of Delaware; aged 40; on the staff of the Homeopathic Hospital, where he died, in August, of carcinoma of the cecum.

Wade Hampton Brannon, Anniston, Ala.; Birmingham Medical College, 1910; member of the Medical Association of the State of Alabama; past president of the Calhoun County Medical Society; on the staff of the Grover Hospital; aged 43; died, August 17.

Hiram Byrd ⊕ Detroit; University of Georgia Medical Department, Augusta, 1902; director of the department of hygiene, University of Mississippi, 1919-1920, and at the University of Alabama, 1920-1922; aged 55; died, July 20, of angina pectoris.

Claude L. Rawlings ⊕ New Harmony, Ind.; Washington University School of Medicine, St. Louis, 1903; secretary and past president of the Posey County Medical Society; aged 50; died, August 27, in the Walker Hospital, Evansville, of acute pyelonephritis.

Jeremiah Francis Brennan, Boston; Tufts College Medical School, Boston, 1923; member of the Massachusetts Medical Society; on the staff of St. Elizabeth's Hospital, where he died, August 27, aged 37, of bronchopneumonia and cardiorenal disease.

Harold J. Chapman ⊕ Speed, Kan.; Wisconsin Eclectic Medical School, Milwaukee, 1896; aged 62; died, June 30, in the Presbyterian Hospital, Chicago, of peritonitis, following operation for obstruction of the duodenum and gallstones.

Roy Logan Stackpole, Pittsburgh; Western Reserve University School of Medicine, Cleveland, 1901; past president of the Butler (Pa.) County Medical Society; aged 53; died, August 21, of lung abscess and mediastinal tumor.

William Franklin Matson, Denver; State University of Iowa College of Medicine, Iowa City, 1896; member of the *Colorado State Medical Society; aged 66; died, August 11, in* Victoria, B. C., Canada, of heart disease.

J. Ensor Hutcheson ⊕ Rockville Center, N. Y.; Bellevue Hospital Medical College, New York, 1890; past president of the Medical Society of the County of Nassau; aged 61; died, August 16, of chronic endocarditis.

Alexander Aisman ⊕ Brooklyn; University and Bellevue Hospital Medical College, New York, 1912; on the staff of the Jewish Hospital; aged 39; died, August 16, of chronic nephritis and myocarditis.

Benjamin Franklin Pearce, Lancaster, Pa.; Medical College of Virginia, Richmond, 1929; intern, St. Joseph's Hospital; aged 30; hanged himself, August 12, in the State Hospital, Raleigh, N. C.

John Atkinson Hunnicutt, Athens, Ga.; Atlanta Medical College, 1866; Civil War veteran; formerly mayor, president of the bank, and member of the school board; aged 92; died, August 10.

William Cheney Watts, Drew, Miss.; University of the South Medical Department, Sewanee, Tenn., 1896; aged 55; died, July 27, in Greenwood, of splenomegaly following undulant fever.

Herman S. Spear, North Anson, Maine; Dartmouth Medical School, Hanover, N. H., 1897; member of the Maine Medical Association; aged 61; died, May 22, of coronary occlusion.

Washington Irving Goewey, Albany, N. Y.; Albany Medical College, 1892; aged 72; died, July 31, in the Glens Falls (N. Y.) Hospital, of injuries received in an automobile accident.

Edward C. Ayres, Lorimor, Iowa; State University of Iowa College of Medicine, 1894; past president of the Union County Medical Society; aged 64; died, July 13, of angina pectoris.

Martin L. Oilar, Russiaville, Ind.; Medical College of Ohio, Cincinnati, 1875; aged 78; died, August 21, in the Johns Hopkins Hospital, Baltimore, of hemorrhage due to gastric ulcer.

William N. Wardlaw, Childress, Texas; Fort Worth School of Medicine, 1895; member of the State Medical Association of Texas; aged 60; died, May 27, of acute nephritis.

Charles M. Long, Osakis, Minn.; Rush Medical College, Chicago, 1878; aged 81; died, August 3, in a hospital at Alexandria, of carcinoma of the cecum and intestinal obstruction.

James C. Welch, Salem, Mo.; Medical College of Ohio, Cincinnati, 1889; member of the Missouri State Medical Association; aged 69; died, May 30, of cerebral hemorrhage.

Walter Arthur Monnich, Minneapolis; Baltimore Medical College, 1910; served during the World War; aged 46; died, August 28, in Prescott, Ariz., of pulmonary tuberculosis.

Guilford Sims Wright, Cowan, Tenn.; Vanderbilt University School of Medicine, Nashville, Tenn., 1895; aged 56; died, August 12, in Sewanee, of carcinoma of the lung.

Newton Bolivar Haney, Fort Worth, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1882; aged 76; died, July 24, of myocarditis and arteriosclerosis.

Eduard Sylvester Smith, Jr. ⊕ New York; University of Vermont College of Medicine, Burlington, 1916; served during the World War; aged 40; died, July 6.

Frederick Raymond Devine ⊕ Riverside, R. I.; University of Maryland School of Medicine, Baltimore, 1913; aged 38; died suddenly, August 15, of heart disease.

Joseph Eloi Fontaine, Hull, Que., Canada; School of Medicine and Surgery of Montreal, 1891; formerly mayor of Hull; aged 64; died, June 11, of myocarditis.

John A. Weamer ⊕ Tarentum, Pa.; Baltimore Medical College, 1896; on the staff of the Allegheny Valley Hospital; aged 61; died, August 31, of lung abscess.

Joseph Edward Quinn, New York; Fordham University School of Medicine, New York, 1921; surgeon, U. S. Public Health Service; aged 32; died, July 25.

James McMahon, Texarkana, Ark.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1873; aged 86; died, August 3, of cerebral hemorrhage.

George Ernest Webber ⊕ Morland, Kan.; Medico-Chirurgical College of Kansas City, 1904; aged 57; was killed, August 12, when his car hit a culvert.

David Michael Flannery, Brooklyn; Medical Department of the University of the City of New York, 1880; aged 81; died, August 20, of arteriosclerosis.

Lucius B. Bates, St. Matthews, S. C.; University of South Carolina Medical Department, Columbia, 1868; Confederate veteran; aged 83; died, August 14.

Le Roy Dibble, Kansas City, Mo.; Bellevue Hospital Medical College, New York, 1871; Civil War veteran; aged 86; died, August 6, of nephritis.

William Merrill Hutchinson, Pompton Plains, N. J.; Long Island College Hospital, Brooklyn, 1881; aged 70; died, June 8, of chronic myocarditis.

Joseph Davis Todd, Adrian, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1869; Civil War veteran; aged 86; died, May 24, of senility.

Eugene Lee McCurdy, Stone Mountain, Ga.; Emory University School of Medicine, Atlanta, 1924; aged 31; died, July 27, of pulmonary tuberculosis.

Samuel M. Stedman, Versailles, Ky.; University of Louisville School of Medicine, 1891; aged 62; died, August 7, in the Woodford Memorial Hospital.

Elijah Sylvanis Goff ⊕ Spencer, W. Va.; Kentucky University Medical Department, Louisville, 1905; aged 49; died, August 3, of chronic nephritis.

James W. Dinsmore, Nebo, Ill.; St. Louis College of Physicians and Surgeons, 1896; aged 60; died, July 24, in the Barnes Hospital, St. Louis.

James Phillip Lunt, Rector, Ark.; Barnes Medical College, St. Louis, 1906; member of the Arkansas Medical Society; aged 53; died, August 14.

Henry H. Irwin, Woodstock, Va.; College of Physicians and Surgeons, Baltimore, 1885; aged 67; died, July 23, of cerebral softening.

James M. Arnold, Lexington, Tenn.; Vanderbilt University School of Medicine, Nashville, 1890; aged 80; died, July 30, of lobar pneumonia.

Squire Morgan Henry ⊕ Lockney, Texas; College of Physicians and Surgeons, Dallas, 1908; aged 67; died, July 4, in Los Angeles.

James Monroe Venters, Portland, Tenn.; Hospital College of Medicine, Louisville, 1904; aged 57; died, August 18, of heart disease.

Salton McGibbon, Edmonton, Alta., Canada; McGill University Faculty of Medicine, Montreal, Que., 1902; aged 52; died, August 8.

Francis S. Comfort, St. Catharines, Ont., Canada; University of Buffalo (N. Y.) School of Medicine, 1885; died, July 24.

Charles Douglas Wright, Springfield, Ill.; Rush Medical College, Chicago, 1880; aged 73; died, August 26, of heart disease.

Charles Frederick Disen ⊕ Minneapolis; Rush Medical College, Chicago, 1886; aged 69; died, August 6, of paralysis agitans.

Newton Bruce Marsh, Falkner, Miss. (licensed, Mississippi, 1882); aged 69; died, August 26, of heart disease.

John Calvin Smith ⊕ Catoosa, Okla.; Baltimore Medical College, 1902; aged 54; died, July 20.

Bureau of Investigation

THE STROOPAL FRAUD

Another "Cancer Cure" Denied the Use of the Mails

For many years a nostrum known as Stroopal has been sold on both sides of the Atlantic as a cure for cancer. The stuff apparently originated in Germany. For some years it was exploited from London, and the fraud was exposed by London *Truth* nearly twenty years ago. In the "Cautionary List" which that militant weekly issued annually at that time, the following brief paragraph appeared:

> "Stroopal.—A cancer-cure purveyed by a Mr. W. Faupel, of Windsor-lodge, Hartfield-road, Wimbledon. The cure is made in Germany by a 'Professor' Stroop and consists of three powders to be taken at monthly intervals when the moon is new. Its advertisement has been stopped in Germany under the law which forbids the advertisement of secret remedies."

According to Gehe's Codex (January, 1913, page 99) Stroopal is composed of the powdered leaves of *Teucrium Scordium,* otherwise known as water germander or wood garlic.

For at least seventeen years, and probably longer, Stroopal has been exploited in a small way from Chicago. At first it seems to have been sold by a rather crude concern known variously as the "Institute of Regeneration" and "Institute of Reform," which operated from various addresses in Chicago. This concern, which seems to have been operated by one E. P. Handl, addressed itself especially to the German-American element, a large part of the advertising matter being printed in German script. Part of the "come-on" literature consisted in photographic reproductions of so-called Diplomas of Merit from European expositions, each showing that such a "Diploma" was issued to Mr. A. Stroop, the originator of Stroopal. In addition, there were reproduced photographically the official trade-mark specifications issued to Ernst Handl from the United States Patent Office for certain nostrums.

More recently Stroopal seems to have been advertised under the name of the Stroopal Company, 2101 Belmont Avenue, Chicago. This is the address of a small butcher shop.

The postal authorities on August 13, issued a fraud order against the Stroopal Company and notified the Chicago postmaster to return all letters addressed to the Stroopal Company to the original senders, after having stamped on the letters "Fraudulent."

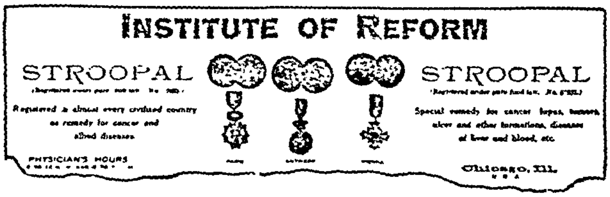
The memorandum of the Solicitor of the Post Office Department to the Postmaster-General, recommending the issuance of a fraud order, states that after the postal authorities had notified the Stroopal Company at Chicago and its agents, one John Altbaumer at Centralia, Okla., and a Mrs. E. Boeding at Seneca, Kansas, to show cause why a fraud order should not be issued against them, no appearance was made either in person or by attorney on the date set for the hearing. A week later, according to the memorandum, John A. Nash, a Chicago attorney, appeared in Washington and presented informally a written answer denying the charges. Readers of this department of The Journal may remember that the reports that have been published of medical mail-order frauds have recorded the appearance, as attorney, of John A. Nash of Chicago in other cases: The "Lavex" "catarrh cure" fraud of Kansas City, Mo.; the aphrodisiac fraud of Jean Jacques Laboratories of Chicago; the "lost manhood" fraud of A. T. Hay of Chicago; the Burgess and Johnson frauds of Kansas City, Mo. The Solicitor's memorandum states in part:

> "The Stroopal Company is a trade name used by one Alphonse Faupel, John Altbaumer and Mrs. E. Boeding in the sale through the mails of a product called Stroopal. It is claimed by the promoters of this product that it was 'born' 150 years ago in the laboratories of a great physician of Northern Westphalia. This physician is alleged to have been a close friend of the Stroop family and to have given to its members the secret formula for his preparation, in return for performance of an 'unusual service.' The product is manufactured in Germany and is forwarded to Mr. Faupel at Chicago, where it is dispensed by him from a meat market operated by his brother. Mr. Altbaumer and Mrs. Boeding are agents.
>
> "The evidence shows that Stroopal is sold through the mails upon representations to the effect that, when used as directed, it will cure cancer, tumors, goiter and all internal and external swellings, blood diseases, piles, boils, ulcers, lupus, eruptions, stomach, liver, kidney and gallstone ailments, mastitis, delayed and painful menstruation; that it restores the tissues; that it succeeds in seemingly hopeless cases when all else, even the surgeon's knife has failed, and that it is an effective preventive of disease."

Business was obtained by means of circulars and form-letters, as well as advertising leaflets and other material. The memorandum then continues:

> "The evidence shows that Stroopal is composed of the powdered leaves of *Teucrium Scordium,* otherwise known as water germander or wood garlic. A so-called full course of Stroopal consists of three 'principal' powders to be taken one a month. In addition, 'intermediate' powders to be taken one a week by persons on whom the disease or condition involved has gained a 'strong hold' are also purveyed. The literature directs that the 'principal powders' be taken at 'new moon' and the supplemental or 'intermediate powders' at 'full moon.' According to these directions, 'urgent' cases permit taking of 'intermediate' powders on 'any other days' but 'best always at the first and last quarter-face of the moon.' The price of the so-called full course is $6. Intermediate powders are sold at $1 each, but their sale is limited to purchasers of the full course."

The Solicitor in his memorandum to the Postmaster General stated that, according to scientific medicine, the crude drug of which Stroopal is composed, while once popularly used for cancer and other serious diseases, is now entirely obsolete, except as a means of discouraging moths. He pointed out, further, that the use of Stroopal in cases of cancer was worse than worthless, because of the delay in instituting scientific treatment of the condition.



INSTITUTE OF REFORM

STROOPAL

Registered in almost every civilized country as remedy for cancer and allied diseases.

PHYSICIAN'S HOURS

STROOPAL

Special remedy for cancer lupus, tumors, ulcer and other formations, diseases of liver and blood, etc.

Chicago, Ill.

The Solicitor also calls attention to the fact that some of the advertising matter for Stroopal purported to reproduce pictures of medals and other declarations said to have been awarded at exhibitions held in various European cities, including Antwerp, Belgium, and Paris. The Solicitor states that investigation by representatives of the United States government in these European cities shows that no exhibitions of the character mentioned were ever held in these places. In this connection, it is worth reminding our readers that this department of The Journal, some years ago (March 4, 1914), published an article describing some of these fake Grand Prix, diplomas and gold medals and how they were obtained. This matter is reprinted in the pamphlet, "Some Quasi-Medical Institutions," prepared and issued by the Bureau of Investigation.

The memorandum then closes with these paragraphs:

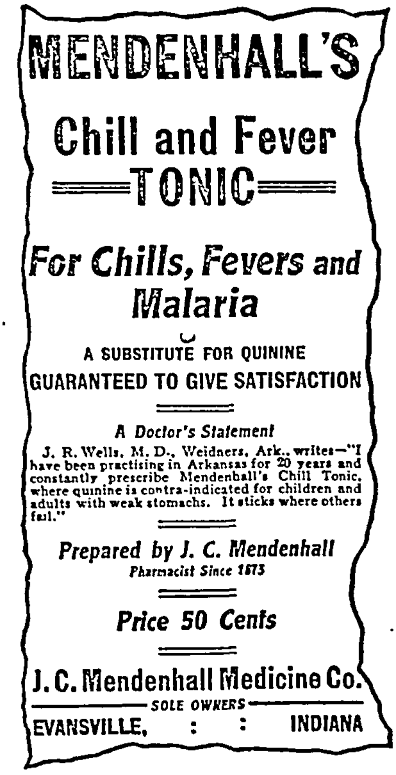
> "The history of Stroopal in America has been turbulent. Barred from entry as dangerous to the health of the people of the United States, it was for a time smuggled into the country as 'metal cleaning powder.' Its American vendors have, moreover, on at least one occasion, been driven from business by local authorities and a number of spurious medals and diplomas confiscated. Approximately 40 pieces of mail are being received daily at Chicago, Ill., addressed to the Stroopal Company.
>
> "John Altbaumer at Centralia, Okla., and Mrs. E. Boeding at Seneca, Kansas, have been permitted to abandon this scheme by filing affidavits to that effect in this office, thus obviating the necessity of the issuance, at this time, of a fraud order against their personal names.
>
> "The evidence shows that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, and I so find.
>
> "I, therefore, recommend that a fraud order be issued against the Stroopal Company and its officers and agents as such, at Chicago, Ill."

MORE MISBRANDED NOSTRUMS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

Schieffelin Cold and Grippe Tablets.—Schieffelin and Company, New York City, shipped in January, 1929, into New Jersey a quantity of Schieffelin's Cold and Grippe Tablets that were declared misbranded. The tablets were found on analysis to contain acetanilide, cinchona alkaloids, red pepper, camphor, aloin and extracts of plant drugs, including a laxative drug. The claim that it was a remedy for influenza was declared false and fraudulent and in July, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16583; issued February, 1930.*]

Mendenhall's Chill and Fever Tonic.—The J. C. Mendenhall Medicine Company, Evansville, Ind., shipped in January, 1929, to St. Louis, Mo., a quantity of Mendenhall's Chill and Fever Tonic that was declared adulterated and misbranded. Analysis showed the stuff to consist essentially of quinidine sulphate (6.32 grains to the fluid ounce), a laxative plant drug extractive, glycerine, alcohol, sugar, water and a trace of benzoate of soda. Adulteration was charged in that it was claimed on the trade package that it contained no dangerous drug when, as a matter of fact, each fluid ounce contained the equivalent of several grains of quinine; it was declared misbranded because the claims that it was a cure for influenza, general debility, loss of appetite, jaundice, biliousness, etc., were false and fraudulent. In June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16546; issued March, 1930.*]



MENDENHALL'S

Chill and Fever

TONIC

For Chills, Fevers and Malaria

A SUBSTITUTE FOR QUININE

GUARANTEED TO GIVE SATISFACTION

A Doctor's Statement

J. R. Wells, M. D., Weidners, Ark., writes—"I have been practising in Arkansas for 20 years and constantly prescribe Mendenhall's Chill Tonic, where quinine is contra-indicated for children and adults with weak stomachs. It sticks where others fail."

Prepared by J. C. Mendenhall

Pharmacist Since 1873

Price 50 Cents

J. C. Mendenhall Medicine Co.

SOLE OWNERS

EVANSVILLE, : : INDIANA

Goodwin's Cold Breakers.—The Senoret Chemical Company of St. Louis, Mo., shipped to Wheeling, W. Va., in December, 1928, a quantity of Goodwin's Cold Breakers that were declared misbranded. The tablets were found on analysis to contain acetanilide, aloin, strychnine and a laxative plant drug. The claim that it was a remedy for influenza was declared false and fraudulent. In May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16590; issued February, 1930.*]

Sternox.—The Sterno Corporation, New York City, shipped to Connecticut in January, 1929, a quantity of Sternox which was declared misbranded. The federal chemists reported that Sternox was essentially petrolatum with small amounts of camphor, menthol, turpentine, thyme and eucalyptus oils. The claim that it was a remedy for coughs, influenza, croup, etc., was declared false and fraudulent and in June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16550; issued March, 1930.*]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

"THE THIN CHILD AND CALCIUM"

To the Editor:—The article in *Good Housekeeping Magazine* for June, 1930, "The Thin Child and Calcium," by Dr. Josephine H. Kenyon, has caused not a few of my patients to call up with reference to the treatment. May I be advised if sufficient scientific investigation has been done to carry out the treatment as outlined without control laboratory blood calcium findings. This type of child, usually the only child of a neuropathic parent, constitutes about 30 per cent of my office practice, but I hesitate to employ such treatment as outlined without blood calcium determinations for fear of a hypercalcemia.

Gordon Chown, M.D., Winnipeg, Manit.

Answer.—The article on "The Thin Child and Calcium" deserves some comment. The author assumes that severe forms of underfunction of the parathyroid gland are an underlying factor in such habits as blinking, twitching, head nodding, bed wetting, and some cases of temper tantrums. In order to prove this statement it would be necessary to demonstrate a dysfunction of the parathyroid gland. The only possible means of showing parathyroid gland deficiency consists in finding a lowered serum calcium or the signs of manifest or latent tetany, such as increased nervous irritability on the application of a galvanic current (cathodal opening contraction less than 5 milliamperes); Erb's sign or the presence of the facial phenomenon, Chvostek's sign in which active muscular twitching occurs on mechanical stimulation of the muscles supplied by the facial nerve, or Trousseau's sign, which is characterized by a carpal contracture if a constriction is applied above the elbow.

The writer, Dr. Kenyon, who is advising "Mothers of the Health and Happiness Club," does not inform us that she has taken pains to establish a correct diagnosis of parathyroid deficiency and consequently one may question whether her assumption is correct. The diagnosis is certainly not a simple one and cannot be readily made.

The author continues describing an undernourished child who looks old for his years and holds his muscles tensely. He is overactive, sleeps little, and finds it hard to concentrate. The author states that these are sad looking children; they worry; they may become easily angry; they lack in physical endurance. The author believes that these children respond splendidly to calcium and parathyroid gland medication. This is doubtful. As the writer of the question says, these neuropathic children form a considerable part of every doctor's office practice. The biochemistry of this group of children is little understood. May it not be assumed that the gastro-intestinal symptoms, attacks of mucous diarrhea, and distressing or cyclic vomiting are due to the effect of an unstable nervous system on metabolic processes?

It is not uncommon in this group of children to encounter, during the emotional outbursts, acidosis, diminution in the alkali reserve in the blood, and a transient hypoglycemia. As a rule, contrary to what is found in tentany, these children are relaxed and hypotonic. It would be difficult or impossible to analyze the pathogenesis of these emotional states. There are undoubtedly hereditary, environmental and organic factors that are not readily discernible. But to say that they are almost invariably due to hypocalcemia or hypofunction of the parathyroid gland is going almost too far.

The author also advises among other things viosterol. It would seem that the public is being ill advised about the promiscuous use of this remedy. Physicians themselves have still to be educated in its use and dosage. Reports are just beginning to come in which seem to indicate that the dangers of hypermineralization have still to be ascertained.

Dr. Kenyon closes by saying that it is wonderful to see the thin child quiet down, become less combative, put on weight and really sleep after the calcium-parathyroid-viosterol treatment among several other things that are advised.

Medical authors who address themselves to the public should exercise considerable caution in giving advice about treatment. It would be well, too, if they based their advice and deductions on well founded clinical and scientific knowledge.

If the public is to be educated in medical matters, and it is right that it should be, the information should be useful, exact and harmless. Conditions and indications of treatment and the selection and dosage of remedies should invariably be referred to the family physician.

Alfred F. Hess in his book "Rickets, Osteomalacia and Tetany" (Lea & Febiger, 1929, pp. 399-400) has the following to say about the use of parathyroid extract: Since the parathyroid extract has been used in various clinics for two to three years it has not been found to be perfectly satisfactory. Clinical results are irregular and the rise in calcium variable. Some infants react with marked depression associated with pallor, vomiting and mild diarrhea, symptoms that may give cause for *alarm*. The extract does not act as a curative but is purely symptomatic, increasing the calcium in the blood by drawing on the calcium reserve of the bone.

McCOLLUM BALANCED DRY DIET FOR LABORATORY ALBINO RAT

To the Editor:—Will you kindly advise me concerning the exact composition of the McCollum balanced dry diet for the laboratory albino rat.

Harry M. Miller, Jr., Ph.D., Friday Harbor, Wash.

Answer.—Presumably the following ration is referred to (McCollum, E. V.: *Bull. Johns Hopkins Hosp.* **33**:202, 1902):

	Per Cent
Wheat	30
Maize	30
Rolled oats	30
Linseed meal	10

Whole milk is supplied ad libitum and twice a week fresh greens or carrots.

The ration recommended by Steenbock (*Science* **58**:449, 1923) is as follows:

	Per Cent
Yellow corn meal	76.0
Linseed meal	16.0
Commercial casein	5.0
Ground alfalfa	2.0
Sodium chloride	0.5
Calcium carbonate	0.5

Fresh whole milk is supplied ad libitum.

Sherman has employed a mixture of ground whole wheat, 3 parts; whole milk powder, 1 part, together with common salt equivalent to one per cent of the mixture. This has been modified to meet the requirements of lactation better (Smith, A. H., and Anderson, W. E.: *Science* **70**:98, 1929) as follows:

	Per Cent
Ground whole wheat	65.8
Whole milk powder	32.8
Calcium carbonate	0.7
Sodium chloride	0.7

Lettuce is also supplied daily; and during the period of lactation the females receive dried yeast three times a week.

H. M. Evans (*Am. J. Physiol.* **85**:154 [May] 1928) has recommended the following ration:

	Per Cent
Whole wheat	67.5
Casein	15.0
Whole milk powder	10.0
Sodium chloride	1.0
Calcium carbonate	1.5
Butter fat	5.0
Fresh lettuce	

All of these diets are discussed in the monograph of A. H. Smith and L. B. Mendel entitled "Praktisches Verfahren bei *Ernährungsversuchen*," *in* Abderhalden's Handbuch der biologischen Arbeitsmethoden, 1930, section IV, part 13, pp. 117-172.

BLOOD IN FETUS—DEATH OF FETUS AFTER INTERFERENCE WITH CIRCULATION

To the Editor:—Will you kindly answer the following questions or give references where the information might be found: 1. What is the average total volume of blood in a fetus at term, including the cord and placenta? 2. What percentage of the total is in the fetus? In the cord? In the placenta? 3. How long after compression of the cord will a six month fetus in utero live? A fetus at or near term? Please omit name.

M.D., Texas.

Answer.—1. As far as is known, no one has determined the amount of blood that is to be found in the fetus, the umbilical cord and the placenta at the same time. This question would be difficult to settle because each of the three components may vary considerably and the amount of blood would depend on the variations present. Thus, as far as the fetus is concerned, it is known that the the amount of blood varies with the size of the fetus and also with the time the cord is ligated. If a delay of a few minutes is made following the birth of the child before the cord is ligated, the child will obtain an additional 40 to 60 cc. of blood from the placenta. In general, the volume of blood found in a new-born baby is approximately one eleventh of the body weight. Since the average weight of new-born babies is about 3,100 Gm., the average amount of blood is about 280 Gm.; but factors other than body weight undoubtedly play a part in the volume of blood present.

2. Likewise the amount of blood to be found in the umbilical cord will vary with the length of the cord, the number of twists it has, the caliber of the blood vessels, and the number of blood vessels. The amount of blood in the placenta varies with the size of the organ, the richness of the villi, the size and number of infarcts, the amount of calcification and other factors.

3. It is difficult to say how long a 6 months fetus in utero can live after compression of the cord because clinically such an occurrence is extremely rare. Most likely the length of time is less than that for a full-term child. The latter may live as *long as twenty minutes after compression of the cord*, although this is unusual. Most babies do not survive more than ten to twelve minutes after the circulation in the cord is completely obliterated.

INJECTION METHOD FOR VARICOSE VEINS—SALT SOLUTION FOR CEREBRAL DEHYDRATION—MALARIAL TREATMENT OF DEMENTIA PARALYTICA

To the Editor:—1. When a solution of sodium chloride is used in the injection treatment of varicose veins, what strength solution is to be used? 2. What is the percentage of salt used in sodium chloride solution, when hypertonic salt solution is given intravenously, for cerebral edema or increased intracranial tension? 3. Please give me enough of the details of the treatment of syphilitic dementia paralytica by infection with malaria to enable me to treat a case by this method. Kindly omit name.

M.D., Montana.

Answer.—1. McLatchie (The Treatment of Varicose Veins by Intravenous Injections, published by the Macmillan Company, 60 Fifth Avenue, New York, in 1929) says that sodium chloride is usually employed in a 15 to 20 per cent solution. The quantity injected at one sitting is from 5 to 10 cc., but larger amounts can be used. For patients of an advanced age a stronger solution up to 25 per cent may be required.

Douthwaite (The Injection Treatment of Varicose Veins, published by Lewis and Company, Ltd., 28 Gower Place, London, W. C. 1, in 1928) says that a 20 per cent solution of sodium chloride injected in quantities of from 4 to 10 cc. gives, *not infrequently*, good results but is not certain in its effects. Cramplike pains are produced immediately after injection, similar in nature to those due to salicylate.

Kern and Angle (The Journal, Aug. 24, 1929) say that there are five solutions being used rather extensively in Europe and in this country, namely, sodium chloride, 15 to 30 per cent; sodium salicylate, 20 to 60 per cent; dextrose, 50 per cent; a mixture of sodium chloride, 10 per cent and sodium salicylate 25 per cent; and quinine and urea (0.5 Gm. of quinine and 0.25 Gm. of ethylurethane in 2 cc. of water). There are valid objections to all of these solutions. In the case of sodium chloride and sodium salicylate, they say, the cramp following the injection is severe and there is at times a very marked perivenitis after injection, with infiltration, redness and tenderness of the skin and subcutaneous tissue surrounding the vein.

The use of sodium chloride for this purpose is further discussed in an article in The Journal, March 9, 1929, by de Takáts. It might be well to call attention also to a Current Comment in The Journal, May 14, 1927, page 1571, concerning a case reported by Lomholt. This patient had been given *five injections of 5 cc. each of 20 per cent sodium chloride solution*. The saphenous vein became thrombotic up to the fossa ovalis and in two weeks the symptoms of pulmonary embolism developed. The patient overcame the attacks, but about one month after the injection treatment he died suddenly of embolism of the pulmonary artery. Lomholt (at that time) said that only one similar case is reported in the literature and in that case the embolism was traced to infected hemorrhoids.

2. This question was answered in Queries and Minor Notes (The Journal, May 5, 1927) under the heading "Hypertonic Salt Solution for Cerebral Dehydration." Fay (The Journal, May 19, 1923) tabulated fifteen cases in which hypertonic sodium chloride solution was injected. The proportions used in most of these cases were 15 per cent; in one, 18 per cent, and in the remainder, 35 per cent.

Peet (Reduction of Increased Intracranial Pressure by Intravenous Administration of Glucose and Hypertonic Ringer's Solution, The Journal, June 27, 1925) says that the rapid reduction of intracranial tension in acute intracranial traumas unassociated with shock is best accomplished by the intravenous administration of hypertonic Ringer's solution. Dextrose may be given later to maintain the lowered intracranial pressure. Hypertonic dextrose solution administered intravenously is indicated when acute intracranial pressure is associated with shock or hemorrhage, and in the less acute cases when complicated by dehydration, nausea and vomiting. Dextrose has the following advantages over any of the salt solutions: prolonged action, no terminal rise in pressure, nontoxicity, nondehydration, increased blood volume in shock, and the control of acidosis.

The intravenous introduction of all hypertonic solutions must be made slowly. Any sudden change in the pulse is a warning to stop the flow of the solution for a moment, and further introductions must be at a slower rate. The subject is further discussed by Brain in the *British Medical Journal*, Jan. 21, 1928.

3. This treatment should not be undertaken by one who has not had considerable experience with the method. In the first place the treatment is being given more and more to a selected group of patients, as not all patients do well and there is some times considerable danger involved. The correspondent might read an article in The Journal, Feb. 21, 1925, by Bunker and Kirby, entitled "Treatment of General Paralysis by Inoculation with Malaria," and articles in the *Archives of Neurology and Psychiatry*, August, 1926, and October, 1929, by McIntyre and McIntyre and by DeAsis, respectively.

TULAREMIA AND WIDAL TEST

To the Editor:—A patient developed a sore on a finger, followed in a few days by adenopathy at the elbow and in the axilla. This was accompanied by chills and fever. After about two weeks the adenopathy disappeared but the fever continued, being about 100 to 104 F., usually about 102. At the end of two weeks a Widal test was returned positive, making the diagnosis of typhoid apparently conclusive. It occurs to me, however, that tularemia could be present in this case. Could it be that the presence of the tularemia could give a clumping of the typhoid bacteria and in that way a positive Widal when typhoid does not exist?

G. H. Parmenter, M.D., Beecher City, Ill.

Answer.—Francis and Evans and Simpson have reported that serums giving a positive agglutination reaction with *Bacterium tularense* do not show cross-agglutination with *B. typhosus, B. paratyphosus* A and *B. paratyphosus* B. Cross-agglutination of *Brucella abortus* and *Brucella melitensis* does occur in about 37 per cent of serums which give a positive reaction for tularemia. The history and the proportionately higher titer reached by anti-*tularense* agglutinins usually leave no doubt as to the proper interpretation of the serologic observations in the event of cross-agglutination of *Brucella* and *Bacterium tularense.* In view of the fact that anti-*tularense* agglutinins persist in the serum indefinitely, it would still be possible to test the serum of the patient for the presence of tularemia infection. It is not uncommon to obtain a positive Widal reaction in patients who have been previously inoculated with the single typhoid vaccine or the triple vaccine (*typhosus, paratyphosus* A and *paratyphosus* B). A positive Widal reaction may also be obtained from persons who have recovered from a previous typhoid infection. With the exception of the occasional cross-agglutination of *Bacterium tularense* and *Brucella,* the agglutination reaction for tularemia is highly specific.

VARIATIONS IN SOIL AND VITAMIN CONTENT OF FOODS

To the Editor:—Do variations of the chemical or other elements in a soil change the amount or nature of the vitamins in the foods produced in that soil? May I have the sources of this information? I have become much interested in the vitamins and the soils and foods in this country as so many of our children have early dental caries. An analysis of the soils here is shortly to be made that will possibly give some slight information on this point, but I am wondering how different soils, acid, and otherwise, would affect, if any, the vitamin contents of the foods. I have not yet come across any statement on that line.

Elwood L. Davis, M.D., Kijabe, East Africa.

Answer.—We are not aware of any evidences that the nature of the vitamins in plant products can be altered by either intentional or fortuitous changes in the agricultural conditions. It is by no means unlikely, however, that the content of characteristic vitamins in edible species of plants varies with soil and other environmental conditions. These affect the rate of growth, the proportions of leaf to stem, tubers and roots, and the character of the fruit, so that the amount of a given vitamin in a single plant or unit weight of edible portion may be varied in unmistakable degree. Green leaves are as a rule richer in vitamin A than are the unpigmented parts of the plant. Variations in the vitamin content of green and "pale" lettuce have been demonstrated repeatedly; for example, in the studies of Crist and Dye at the Michigan Agricultural College, East Lansing. The antiscorbutic potency (content of vitamin C) of some plants varies with the stage of growth, which in turn is modified by soil conditions. The subject is one that is at present engaging the attention of scientific investigators, notably in the agricultural experiment stations. It is rather early to draw broad generalizations. Information regarding existing published articles should be obtainable from the Bureau of Chemistry and Soils and the Bureau of Home Economics, U. S. Department of Agriculture, Washington, D. C.

The effect of the composition of soils on the products of plant growth that it yields is shown in connection with the mineral ingredients of the vegetation. In South Africa, where there is a shortage of phosphorus in the soils of some of the grazing lands, the vegetation reflects this deficiency. Cattle maintained on the grasses exhibit pica, or depraved appetite, leading them to eat bones or other sources of the much desired element wherever available. Osteophagia, or bone eating, in cattle is reported to occur in parts of the southwest United States.

Soil conditions are conspicuously responsible for variations in the iodine content of edible plant foods. This is a matter of considerable moment in relation to goiter prophylaxis. As a rule the iodine content of plants tends to decrease as one proceeds inland. This is true of the Middle West and the Great Lakes region. Researches undertaken by the state of South Carolina have indicated that edible crops raised inland in that region have an unexpectedly large iodine content. The potatoes of the Piedmont area are relatively rich in iodine in comparison with the tubers from most potato-producing states. This is presumably due to unique soil conditions related to the geology of the region; possibly in part to the extensive use of Chilean fertilizers that are comparatively rich in iodine. The problems thus presented are within the domain of human nutrition and deserve further study.

With respect to dental caries it is hazardous to venture dogmatic opinions at the present stage of knowledge. The progress of investigations has been recorded from time to time. Undue consumption of sugar and the development of acidophilic flora in the mouth; shortage of vitamin D; lack of vitamin C with development of latent scurvy; lack of adequate oral hygiene; these and other factors have been charged from time to time with responsibility for caries and also periodontal disorders. It is too early to venture any tenable hypothesis, though there can be little doubt that disordered nutrition may readily play a part in the gradual development of profound dental defects.

ANTITOXIN IN DIPHTHERIA

To the Editor:—In looking over my old files of The Journal, I find an editorial in the issue of Dec. 12, 1914, on the administration of antitoxin in diphtheria, an article which I had completely forgotten. This article states that it is useless to give to a child of 44 pounds more than 2,000 units in an ordinary case, and 10,000 units in a very severe case. Also to a person weighing 132 pounds, it is useless to give more than 6,000 units in an ordinary case, or more than 30,000 units in a very severe case. Can you tell me whether this dosage is still considered the maximum that should be given? If so, it will prevent me ever again giving 165,000 units.

J. R. Truscott, M.D., Binford, N. D.

Answer.—There are probably few, if any, physicians of large experience in treating diphtheria who would be satisfied to limit the dose of antitoxin in all cases to 30,000 units. In many hospitals in which late and neglected cases of diphtheria are common, a total of 100,000 units is not infrequently given with apparent benefit. In the Providence City Hospital from 1910 to 1928 the average dose of antitoxin given to diphtheria patients varied by years from 14,338 to 38,126 units, and in 1928 the average dose given to patients who recovered was 26,610 units. The important thing is to give at the earliest moment an adequate dose of antitoxin. If part or all of the antitoxin is introduced directly into a vein, the total may be somewhat reduced. An excess of antitoxin does no harm, but a deficiency may allow fatal injury from the disease.

QUINIDINE IN AURICULAR FIBRILLATION

To the Editor:—A woman, aged 63, has had attacks of paroxysmal auricular fibrillation for the past three years. The history and physical examination are otherwise entirely negative. I have given her 25 grains (1.6 Gm.) of quinidine sulphate daily for the past four months without toxic effects. The attacks occur less frequently and are of shorter duration. Could I safely give larger doses? Would a larger daily administration of quinidine be apt to obviate any further attacks? Over how long a period of time may I administer 25 grains or more of this drug daily? Kindly omit name.

M.D., New York.

Answer.—The dose now being given is larger than that customarily given for a maintenance dose. The average dose for a long period of time is from 10 to 15 grains (0.65 to 1 Gm.) daily. The dose given here is almost the usual maximum dose for a short period of administration. Because of its toxic action the propriety of long-continued administration except in a few selected cases is to be questioned. The dose might be increased safely, but to do so is to take an unwarranted risk. There have been a great many deaths. Parkinson and Campbell found a 4 per cent mortality in reports of cases collected from the literature. While many of the deaths were probably due to embolism, a large percentage were due to the toxic effect of the quinidine on the heart muscle or the respiratory center.

A larger dose would probably not obviate further attacks. If the dosage mentioned has been maintained already for four months it can probably be continued, as quinidine is excreted rapidly. It is a larger dose than is advisable, and the patient should be watched for toxic effects. Evidence of myocardial insufficiency has been observed in such cases which has disappeared when the quinidine has been discontinued.

The history and physical examination should be thoroughly reviewed for some possible clue to the factors inducing the attacks. A toxic thyroid especially should be ruled out. Gastro-intestinal factors frequently precipitate attacks.

REMOVAL OF TAPEWORM IN PREGNANCY—AMPUTATION OF CERVIX AND STERILITY

To the Editor:—1. Is it considered safe to try to remove a tapeworm from a pregnant woman, or shortly after delivery, by the usual means of epsom salt and male fern? Is there any safer way to get rid of it during such a time? (I have heard of a miscarriage that was presumably caused by the treatment and I have wondered what was the safest way to treat such cases, which are not infrequent) 2. How much can one depend on amputation of the cervix to prevent conception? (A former patient of mine went to America on furlough and I hear that she has had the operation done and I know she was keen on preventing further conceptions. What result may be expected?)

ELWOOD L. DAVIS, M.D., Kijabe, East Africa.

ANSWER.—1. Abortion or premature labor may occur as the result of drastic treatment for the removal of a tapeworm during pregnancy. If the patient is near term it is especially advisable to wait until after delivery before attempting the removal of the tapeworm. During the puerperium there is no harm in giving the customary drugs for tenia, but it is best to keep the baby away from the breast for one or two days after the anthelmintics are taken by the patient.

2. Amputation of the cervix is by no means a certain method of preventing conception. Many women who have this operation performed become pregnant afterward, but a certain proportion of them have miscarriages and a still larger number have dystocia during labor. If there is an infection or so-called erosion of the remaining portion of the cervix, sterility may result but even this is by no means a constant occurrence. Perhaps the patient to whom the questionnaire refers may have had a sterilization operation performed when the cervix was amputated.

LIME WATER IN INFANT FEEDING

To the Editor:—Will you please give me your opinion concerning the use of lime water in milk modifications for infants? How much calcium will be added to the milk per ounce of saturated lime water? Is there danger of including too much calcium by this addition? I would be glad to know the advantages and disadvantages of its use.

MARGARET S. CHANEY, Manhattan, Kan.

ANSWER.—Lime water is a saturated aqueous solution containing 0.14 per cent of pure calcium hydroxide. Its addition to cow's milk formulas results in inhibiting the formation of curds (paracaseinates). This action is proportionate to the amounts added. As ordinarily used, 1 ounce (30 cc.) of lime water is added to the formula for each 20 ounces (600 cc.) of milk in the mixture (that is, 5 per cent of lime water). Larger amounts have been used. Lime water is not given the serious consideration at present that it enjoyed formerly when its addition to all artificial formulas was almost routine.

OINTMENT FOR INTERSTITIAL KERATITIS

To the Editor:—I would appreciate learning the formula for Casey Wood's ointment as used for interstitial keratitic lesions.

HARRY V. THOMAS, M.D., Buckhannon, W. Va.

ANSWER.—The ointment in question was the old citrine ointment (old U. S. P. unguentum hydrargyri nitratis) with the variation that crude cod liver oil was used as a base instead of lard oil. As fuming nitric acid is used, the ointment has to be allowed to stand about six months before it is use in order to allow the acid fumes to dissipate.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 7 and 8, 1930. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

ARKANSAS: Little Rock, Nov. 3, 1930. Basic Science. Sec., Mr. Louis E. Grebauer, Little Rock, Ark. Eclectic Board, Little Rock, Nov. 11 and 12, 1930. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith, Ark. Regular, Little Rock, Nov. 11-12, 1930. Sec., Dr. Sam J. Albright, Searcy, Ark.

COLORADO: Denver, Oct. 7, 1930. Sec., Dr. W. W. Williams, 224 State Capitol Bldg., Denver, Colo.

CONNECTICUT: New Haven, Oct. 11, 1930. Basic Science. Address State Board of Healing Arts, 1895 Yale Station, New Haven, Conn. Regular, Nov. 11 and 12, 1930. Sec., Dr. T. P. Murdock, 147 W. Main St., Meriden, Conn. Homeopathic, Nov. 10, 1930. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

FLORIDA: Jacksonville, Nov. 10-11, 1930. Sec., Dr. W.. M. Rowlett, P. O. Box 603, Tampa, Fla.

GEORGIA: Atlanta, Oct. 14-16, 1930. Sec., Dr. B. T. Wise, Americus, Ga.

IDAHO: Boise, Oct. 7, 1930. Comm., Hon. F. E. Lukens, Boise, Idaho.

ILLINOIS: Chicago, Oct. 14-16, 1930. Supt., Mr. P. B. Johnson, Springfield, Ill.

MAINE: Portland, Nov. 11-12, 1930. Sec., Dr. Adam P. Leighton, 192 State St., Portland, Me.

MASSACHUSETTS: Boston, Nov. 12-14, 1930. Sec., Dr. Frank M. Vaughan, 144 State House, Boston, Mass.

MICHIGAN: Lansing, Oct. 14-16, 1930. Sec., Dr. F. C. Warnshuis, 1010 Macabee Bldg., Detroit, Mich.

MINNESOTA: Minneapolis, Oct. 7 and 8, 1930. Basic Science. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., University of Minnesota, Minneapolis, Minn. Reg. Minneapolis, Oct. 21-23, 1930. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul, Minn.

MONTANA: Helena, Oct. 7, 1930. Sec., Dr. S. A. Cooney, Power Block, Helena, Mont.

NEBRASKA: Lincoln, Oct. 7-8, 1930. Basic Science. Sec., Mr. Ernest M. Pollard, Lincoln, Neb. Regular, Lincoln, Nov. 20-22, 1930.

NEVADA: Carson City, Nov. 3-5, 1930. Sec., Dr. Edward E. Hamer, Carson City, Nev.

NEW MEXICO: Santa Fe, Oct. 13-14, 1930. Sec., Dr. W. T. Joyner, 20-21 First National Bank Bldg., Roswell, N. M.

SOUTH CAROLINA: Columbia, Nov. 11, 1930. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia, S. C.

TEXAS: Waco, Nov. 18-20, 1930. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas, Texas.

WEST VIRGINIA: Morgantown, Nov. 20, 1930. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

WYOMING: Cheyenne, Oct. 6, 1930. Sec., Dr. H. W. Hassed, Capitol Bldg., Cheyenne, Wyo.

Rhode Island July Examination

Mr. Lester A. Round, director of the State Public Health Commission of Rhode Island, reports the written and practical examination held at Providence, July 2-3, 1930. The examination covered 7 subjects and included 70 questions. An average of 80 per cent was required to pass. Twenty-eight candidates were examined, 27 of whom passed and 1 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine	(1930) 86.3,* 87.5,*	89.4*
Baltimore Medical College	(1908)	83.5
College of Phys. and Surgs., Baltimore	(1903) 80.7, (1910)	88.2
Johns Hopkins University School of Medicine	(1918)	96.4
Maryland Medical College	(1912)	82.4
Boston University School of Medicine	(1919) (1929) 90.8,	89.7
Harvard University Medical School	(1913)	88.2, (1927) 87.7, (1929) 87.8, 89.1
Tufts College Medical School	(1915)	90.6, (1919) 89.1, (1922) 84.1, (1927) 86.5, (1928) 89.2
St. Louis University School of Medicine	(1930)	87.5*
Columbia Univ. College of Physicians and Surgeons	(1925)	90.8
Jefferson Medical College	(1910)	87.1
University of Pennsylvania Sch. of Med.	(1912) 91.1, (1913)	86.1
University of Vermont College of Medicine	(1913)	86
Medical College of Virginia	(1929)	87.2
Laval University Faculty of Medicine	(1911)	86.4

College FAILED	Year Grad.	Per Cent
Baltimore Medical College	(1899)	63.2

Mr. Round also reports that 3 candidates previously examined presented evidence of completion of internship and were granted licenses. One candidate was licensed, July 10, 1930, on the basis of a National Board of Medical Examiners certificate, after having passed an oral examination. The following colleges were represented:

Georgetown University School of Medicine	(1929)	91.7†
University of Oklahoma School of Medicine	(1929)	89.4‡
Jefferson Medical College	(1929)	89.2§
University of Pennsylvania School of Medicine	(1926)	N. B. M. Ex.

* Certificate withheld pending completion of internship.

† Examined, July 2, 1929; internship completed and license granted, Aug. 2, 1930.

‡ Examined, April 3, 1930, internship completed and license granted, July 15, 1930

§ Examined, April 3, 1930; internship completed and license granted, Aug. 5, 1930.

Georgia June Examination

Dr. B. T. Wise, secretary of the Board of Medical Examiners of Georgia, reports the written examination held at Augusta, June 4 and 5, and Atlanta 11 and 12, 1930. The examination covered 10 subjects and included 100 questions. An average of 80 per cent was required to pass. Seventy candidates were examined and passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
Howard University School of Medicine	(1930)	88.5
Emory University School of Medicine	(1930)	86.6, 87.6, 88.6, 89.1, 89.6, 90.2, 90.3, 90.5, 90.5, 90.6, 90.7, 90.8, 90.9, 91, 91.1, 91.4, 91.4, 91.6, 91.7, 91.8, 91.9, 92.1, 92.3, 92.3, 92.8, 93, 93.1, 93.2, 93.6, 93.6, 93.9, 94.3
University of Georgia Medical Department	(1930)	87.9, 89.7, 89.7, 89.7, 90, 90.2, 90.3, 90.4, 91.3, 91.3, 91.4, 91.5, 91.5, 91.6, 92, 92.1, 92.3, 92.3, 92.3, 92.5, 92.7, 92.8, 93.1, 93.3, 93.5, 93.9, 94.1, 94.7, 94.9, 96.7
Harvard University Medical School	(1920) (1927)	91.2 92.3, 92.8
Columbia Univ. College of Physicians and Surgeons	(1930)	93.6
Jefferson Medical College	(1929)	94.1
Meharry Medical College	(1930)	91.8, 93.6

Dr. Wise also reports 7 physicians licensed through reciprocity with other states since Jan. 1, 1930. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Howard University School of Medicine	(1926)	Dist. Colum.
State University of Iowa College of Medicine	(1922)	Iowa
University of Louisville School of Medicine	(1880)	Missouri
Tulane University of Louisiana School of Medicine	(1926)	Alabama
Johns Hopkins University School of Medicine	(1927)	Maryland
Meharry Medical College	(1929)	Tennessee
University of Tennessee College of Medicine	(1928)	Tennessee

Book Notices

Oxidation-Reduction Potentials. By L. Michaelis, M.D., Member of the Rockefeller Institute for Medical Research. Translated from the German manuscript by Louis B. Flexner. Cloth. Price, $3. Pp. 199, with 16 illustrations. Philadelphia: J. B. Lippincott Company, 1930.

This small volume in a relatively new but rapidly increasing field of interest is the latest in the series of monographs on experimental biology, founded by the late Jacques Loeb. The monographs on experimental biology were founded to bring together the results in special fields of research in separate treatises, especially those fields in which the methods of the exact science are applied to the study of biologic phenomena. The latest member of this series is a worthy companion to its predecessors. Dr. Michaelis is perhaps best known for his contributions to experimental medicine from the point of view of the applications of physical chemistry, a number of articles on which have appeared in the scientific journals under his name, and by his monograph in German on hydrogen ion concentration, a book which holds equal rank with Clark's masterpiece on hydrogen ion concentration. Dr. Michaelis, therefore, is eminently qualified to write on the subject of oxidation-reduction applied to biology. Within the past few years the traditional concepts of oxidation and reduction have undergone extensive revisions and additions, mostly by an application of the electronic theory. The applications to biology were not slow in coming, but the present author believes that a complete and clear exposition of the subject will hasten the application of this phase of physical chemistry to the problems of physiology or, in the wider sense, experimental biology. Wisely the author states: "Up to the present not a great deal has come from the efforts to avail biology of the fruits of these and similar investigations and one must be content to look to the future. The significance of the new point of view, however, is readily appreciated for it provides a clearer and thermodynamically correct approach to cell energetics and I venture to suggest that from these modest beginnings studies of the metabolism of the living cell will be directed to a new path." The book is divided into two main parts: physicochemical considerations and physiologic applications, and the physiologically important redox (that is, oxidation and reduction) systems. The first part gives a lucid and concise account of the theoretical foundations of reversible systems in which oxidation and reduction may take place, and the second part contains an equally lucid and a more interesting account of work already published on biologic systems susceptible of more or less exact measurement. Some topics treated are: sulphydril systems, an exposition of work in the important cystein-cystine system; the hemoglobin-oxyhemoglobin system; Warburg's respiratory ferment, and luciferin. The topics treated are not of immediate interest to the medical reader; for the medical scientist and for the experimental biologist it will be welcome as the first concise account of work in this new and important field applied to ascertaining how that anomalous machine, the human body, functions with such a degree of efficiency. The author is not hesitant in saying that it does so by systems which are in a constant state of oxidation and reduction equilibrium or the transfer of electrons which cause work.

Nouveau traité de psychologie. Par Georges Dumas, professeur à la Sorbonne. Tome I: Notions préliminaires. Introduction. Méthodologie. Avec la collaboration de C. Champy, professeur à la Faculté de médecine de Paris, et al. Cloth. Price, 75 francs. Pp. 425, with 75 illustrations. Paris: Félix Alcan, 1930.

One cannot judge this ambitious treatise by the first volume. It is necessary to agree with the editor that a knowledge of zoology, anthropology, ethnology, linguistics and neurology is a desirable preliminary to the study of psychology. But such knowledge is not apt to be acquired from the chapters in this volume. Chapter 1 on the place of man in the animal series and Chapter 2 on anthropology are condensed to the point of incomprehensibility. It would have been much better simply to refer the readers to the works of Boule, Elliott, Smith, Deniker and Meillet, from which they are largely copied. Chapter 3 is more adequate and Chapter 4 is a masterly essay by an acknowledged authority in neurophysiology. Chapter 5 is again totally inadequate, the attempt to discuss the structure and special physiology of the nervous system in the space of seventy pages being doomed to failure. The remaining chapters are brief essays on the historical development and methodology of psychology.

Behavior Patterns of the Alimentary Tract. By T. Wingate Todd, M.B., Ch.B., F.R.C.S., Western Reserve University. The Beaumont Foundation Lectures, Series Number 9. Cloth. Price, $1. Pp. 79, with 12 illustrations. Baltimore: Williams & Wilkins Company, 1930.

This book represents three of the Beaumont Foundation lectures given by Dr. Todd before the Wayne County Medical Society of Detroit. It is a clear description of a study of the behavior of the alimentary canal by the roentgen method under the influence of local, reflex and emotional stimuli, such stimuli as water, milk, acid, alkali, carminatives, and heat and cold directly and indirectly applied. The study was made on more than 400 normal students and the observations were repeated on each student sufficiently often to give confidence in the behavior pattern outlined. It is a scholarly book and will be found of significant value to all workers in the physiology, pathology and therapy of the alimentary canal.

Untersuchungen über das Dunkelsehen mit Tscherning's photometrischen Gläsern. Von Hans Ulrik Möller, I. Assistent an der Augenabteilung des Reichshospitals. Paper. Pp. 149. Copenhagen: Arnold Busck, 1929.

This short monograph on dark adaptation gives an extensive and thorough review of all the literature of the subject, beginning with Aubert's work in 1865. The work includes investigations of the eye with regard to the various influences on the ultimate outcome, such as the diameter of the pupil, monocular and binocular results, and the size of the object. There are many investigations mentioned regarding the sensitivity in the various areas of the retina, the suppression of the visual acuity in reduced light and the variations of daylight. Extensive use was made of Tscherning's photometric glasses, first introduced in 1922, to vary the light intensity in applying its effects on the eye; also of Tscherning's lamprometer to measure the light intensity. Included are numerous tables and graphs regarding the ultimate results. The bibliography is practically complete, as it incorporates all the articles published to date on this subject. It is well worth the attention of ophthalmologists interested in this subject.

La vie d'Ambroise Paré (Chirurgien du Roy, écrivain). Par le Dr. Léon Michelet. Preface du le Dr. Victor Pauchet. Paper. Price, 10 francs. Pp. 160. Paris: Le Francois, 1930.

In this interesting sketch an account is given of Paré's birth in the city of Laval, of his rather lowly origin, of his early fondness for study, and also about a definite desire on his part as a youth for a surgical career. After being apprenticed to a barber in Laval for three years, during which time he learned little or no surgery, Paré went to Paris with an older brother. There he served another but a more profitable three years' apprenticeship and was able to attend the evening lectures at the Faculty of Medicine. Paré soon attracted the attention of his teachers because of his intelligence, sagacity, powers of observation and ardor for work. When there was a vacancy he was appointed compagnon chirurgien at the Hôtel-Dieu of Paris, where he spent three busy years. While there, Paré kept up his dissections and thus became a skilled anatomist. Next he is seen as an army surgeon with French troops in a campaign against the house of Austria in Savoy and Piedmont. While thus engaged, Paré found that the traditional boiling oil treatment of wounds was both painful and unsatisfactory. He substituted for it a mixture of yolk of egg, rose water and turpentine, which was quite successful. One of Paré's most audacious operations was the removal of a lance shaft from the skull of the noted Duc de Guise, using a pair of blacksmith's tongs. A number of other surgeons had given the case up, so Paré's success added much to his growing reputation. Later, he first ligated the blood vessels following amputation, which some have considered his chief contribution to surgery. In 1552, Henry II appointed him as one of his surgeons. Paré was taken a prisoner by the Spaniards but was released without paying ransom because he cured an obstinate leg ulcer for one of their leading captains. Late in 1554 he became a member of the College royal des chirurgiens. After the death of Henri II Paré served as surgeon to Francis II, Charles IX and Henry III. He was particularly well liked by Charles, who saved him, even though a Protestant, from the massacre of St. Bartholomew's. In 1569 that monarch sent him to treat the Marquis d'Auret, a prominent nobleman at Mons. Paré incised and drained a severe infection following a bullet wound and thus effected a cure where several others had failed. This result brought him recognition from the highest circles. As before, he continued to treat the rich and the poor without distinction. Paré cared for Admiral Coligny just before his assassination during the massacre of St. Bartholomew's. Paré wrote extensively, especially on surgery. He died in 1590, being 81 years old, after a busy career devoted to the relief of human suffering. This monograph is warmly recommended to those who wish to learn about the career of one who has been termed by not a few the Father of Surgery.

A Compilation of Culture Media for the Cultivation of Microorganisms. By Max Levine, Ph.D., Professor of Sanitary and Technical Bacteriology, Bacteriologist, Iowa Engineering Experiment Station, and H. W. Schoenlein, M.S. Cloth. Price, $15. Pp. 969. Baltimore: Williams & Wilkins Company, 1930.

This compilation was made at the request of the Society of American Bacteriologists. The authors searched the standard periodicals of both Europe and America from their beginning to the year 1926, as well as textbooks, monographs, bulletins and other periodicals. They found about 7,000 formulas for culture mediums and these they have arranged and classified into about 2,500 distinct mediums each of which is described as to its constituents, preparation, sterilization and use. The mediums are numbered consecutively, the last one being number 2543. Then follows an index of constituents of mediums; for example, cumumber juice is used in medium 2128; beef is used in fifty-one different mediums and the page on which each of these is described follows the word beef in the constituent index. Next comes the author index, and following that a list of names of persons who first described a particular medium with the reference in the medical journal in which the original article appeared. This is a handy arrangement of a lot of material which was scattered through the libraries and, as far as known, had not been collected and indexed in such fashion before. The authors and the Society of American Bacteriologists deserve credit for undertaking this work. It shows clearly how far the science of bacteriology has advanced since Robert Koch first prepared solid culture mediums.

Unspezifische Therapie und natürliche Abwehrvorgänge. Von Dr. Ferdinand Hoff, Privatdozent für innere Medizin an der Universität Erlangen. Paper. Price, 7.80 marks. Pp. 123, with 15 illustrations. Berlin: Julius Springer, 1930.

During the course of the past few years there have appeared in the German medical literature not only sharp criticisms of our entire therapeutic approach—and this from excellent clinicians—but searching inquiry into the philosophic background as well as the aims, methods and results. As an accompanying manifestation, a number of interesting monographs have appeared that deal with therapy from the nonspecific point of view: Among these, the book of Königer on "Krankenbehandlung durch Umstimmung" as well as this new one of Hoff. It is perhaps to be regretted that here in America the older review of Petersen's has not been followed by a comparable interest in a field that is of wide biologic and therapeutic interest. This monograph is most interesting because it takes up in considerable detail the theoretical background that underlies not only therapy by means of nonspecific agents but the therapeutic effect of diet as well. He makes clear the importance of the interval and the phase in treatment, and the chapter on the relation of the skin as a therapeutic approach presents much that is new and valuable. It is not a book for the "busy practitioner." It is a treatise that is of real value to the pharmacologist—but will probably not be read by the pharmacologist because it has little to say of drugs—to the therapeutist, and to medical men who find pleasure in taking therapeutic problems and observations which they constantly meet in the practice of medicine and unraveling them along lines that seem biologically rational.

A Synopsis of Surgery. By Ernest W. Hey Groves, M.S., M.D., B.Sc., Surgeon to the Bristol General Hospital. Ninth edition. Cloth. Price, $5 net. Pp. 676, with illustrations. New York: William Wood & Company, 1930.

The author has attempted to include the important points of surgical practice in a brief synopsis. It is not meant to replace surgical textbooks but to supplement them by offering the student an opportunity to review the entire subject and to permit the busy practitioner to get a general and systematic survey of modern surgical practice. In this edition the work has been revised and brought down to date, with the inclusion of a number of new methods of treatment. The arrangement of a standard textbook is followed, but the outline form is used and only a few of the salient points are given under each heading. Some of the main subjects taken up are inflammation, acute and chronic infections, tumors, wounds and their treatment, anesthesia, and diseases and injuries of the various systems of the body. The various regions of the body, including the viscera, are then taken up in the same manner and the various surgical diseases and injuries are outlined. The amount of material included is enormous, because of the large field covered. It would seem difficult to improve this synopsis without making it so elaborate that it would lose its purpose. Fairly numerous diagrams and illustrations are included.

Essais et dosages biologiques des substances médicamenteuses. Par Jeanne Lévy, docteur ès sciences physiques. Préface du Professeur Tiffeneau. Paper. Price, 28 francs. Pp. 148, with 15 illustrations. Paris: Masson & Cie, 1930.

This small book on bio-assay is divided into three parts. The first part discusses general principles. The second part takes up the substances now recommended for systematic biologic standardization by the Committee of Hygiene of the League of Nations, which aims at the development of international units. It deals with the digitalis series, epinephrine, hypophysis, ergot, arsphenamines, insulin, thyroid and anthelmintics. The third part is devoted to the biologic standardization of substances not yet considered by the international commission: antipyretics, miotics and mydriatics, vasoconstrictors and vasodilators, local anesthetics, and a mixture of the opium alkaloids.

The Action of Muscles Including Muscle Rest and Muscle Re-education. By Sir Colin Mackenzie, M.D., F.R.C.S., F.R.S., Professor of Comparative Anatomy and Director of the Australian Institute of Anatomy, Canberra. Second edition. Cloth. Price, $3.50. Pp. 288, with 100 illustrations. New York: Paul B. Hoeber, Inc., 1930.

This is a scholarly, timely and useful monograph. While the author is a professor of anatomy he is clearly a functional anatomist, and the book will be a valuable aid to the surgeon, the internist and the physical therapist who are dealing with the various types of muscle paralysis brought on by physical trauma or disease. The illustrations are clear, well selected, and helpful. The practical character of the book may be illustrated by the following quotations:

> The function of muscle, the all important factor, cannot be successfully taught in the dissecting room; it can only be taught on the living and is largely a question of comparison, a comparison between the normal and the paralytic. Only on this plan can the question of origin and insertion of muscle have more than academic interest for the student and the practitioner.
>
> What significance the expression massage and electricity has in the surgeon's mind the writer has often longed to know. In poliomyelitis no massage or electricity should be applied till recovery has taken place. These forms of treatment cannot initiate muscle function, but they can strengthen the action of recovered muscles. The principle cannot be repeated too often that an ounce of scientifically directed volitional effort is worth pounds of passive treatment. With this in mind it is wonderful what can be accomplished in a warm room with the aid of a table, a few pillows, and a sheet of powdered cardboard. Such indeed might be termed the Department of Myology. To this simple department the more complex ones of massage, electricity, and of those movements which owe their name sometimes to the country of origin and sometimes to their inventor, should be subsidiary. The myologist, looking at the case solely from the point of view of function, should determine whether in traumatic cases, at what stage, and of what nature, massage or electrical treatment or both would be beneficial. These should not be ordered indiscriminately and as a matter of routine.

Die Behandlung des Hallux valgus. Von H. Timmer, Privatdozent für orthopädische Chirurgie an der Universität zu Amsterdam. Paper. Price, 4.50 marks. Pp. 62, with 21 illustrations. Leipzig: Johann Ambrosius Barth, 1930.

The author gives an orderly detailed description of the pathologic processes and etiologic factors in hallux valgus. He then describes the indications for correction of this deformity. Line drawings illustrate the various operative procedures described during the past fifty years, consisting of resections of the proximal phalanx or parts of it; the head of the first metatarsal or portions of it; resections of parts of the shaft of the first metatarsal; osteotomy of the first metatarsal; resections of the first cuneiform metatarsal joint; wedge resections of the first cuneiform bone; operations on the sesamoids, tendons and capsules, and combinations of the foregoing. The conservative, bloodless treatment for moderate cases by manipulation, splints, plaster of paris and shoes is described. Timmer concludes with remarks on the necessity for varying the type of treatment according to the indications. This little volume is worthy of study by orthopedists as well as by the general surgeon. It will impress on the reader the fact that this deformity should not be considered lightly.

Handbuch der inneren Sekretion: Eine umfassende Darstellung der Anatomie, Physiologie und Pathologie der endokrinen Drüsen. Band II, Lieferung 7. Herausgegeben von Dr. Max Hirsch. Paper. Price, 7 marks. Pp. 1429-1492. Leipzig: Curt Kabitzsch, 1930.

This section of the larger work contains three brief chapters on the general problem of fat metabolism as related to the endocrine glands. There is a chapter on morphology or, rather, the occurrence of fats in the endocrine glands themselves by Dr. Bererich and Dr. Jaffe; a short chapter by Dr. Handovsky on the chemistry of the aliphatic lipoids; and a somewhat longer chapter by Drs. Westphal and Mann of Hanover on the clinical physiology and pathology of fat metabolism. This chapter is the most important in the present section. The authors deal particularly with the disturbances in the lipoids associated with changes in the endocrine glands, such as the change in the distribution of fats in the female on puberty, the decrease in the blood cholesterol during gestation in mammals, and the increase in blood cholesterol in hypothyroidism and the lipemia of diabetes. The authors are to be commended on their brevity in theorization, with the present dearth of accurate information of the mechanism of lipoid changes in all these conditions. They conclude (p. 1475) that "we must assume that the endocrine glands influence lipoid metabolism just as they influence fat and carbohydrate metabolism, but our present knowledge does not furnish an explanation of the manner or mechanism of this influence."

Klinik und Therapie der Alterskrankheiten dargestellt für den Praktiker. Von Hofrat Professor Dr. Hermann Schlesinger, Vorstand der 3. medizinischen Abteilung des allgemeinen Krankenhauses in Wien. Paper. Price, 6 marks. Pp. 132. Leipzig: Georg Thieme, 1930.

This modest and inexpensive little volume is designed for the medical practitioner. Theoretical considerations are largely eliminated. The main disorders associated with old age are briefly described, differential diagnoses given, and therapies outlined, with the author's experience and success and failures for the different methods of management. The little monograph bears the imprint of a sane and sound medical practitioner with wide experience. In no place does Professor Schlesinger appear to have fallen a victim to the fads of the hour. The modern so-called rejuvenation is briefly discussed. Dr. Schlesinger questions the value and the safety of the Steinach or the Voronoff operations. He remarks, "I have studied many patients subjected to the rejuvenation operation of Steinach but I have practically never seen the physical or mental improvement that optimistic physicians so frequently describe." While the monograph cannot be classed in the group of major contributions to the art of medicine, practitioners will find it a useful and helpful guide.

Manual of the Diseases of the Eye for Students and General Practitioners. By Charles H. May, M.D., Consulting Ophthalmologist to the Mt. Sinai Hospital, to the French Hospital, to the Italian Hospital, New York, and to the Monmouth Memorial Hospital. Thirteenth edition. Cloth. Price, $4 net. Pp. 461, with 374 illustrations. New York: William Wood & Company, 1930.

This is a revision of the well known compend of eye diseases, with the addition of some new plates and a chapter on the slit lamp and corneal microscope, written by T. Harrison Butler for the sixth British edition. The arrangement is the same as in previous editions, the anatomy and physiology of the structure being given at the beginning of each chapter, followed by the various clinical entities, each one being discussed under varieties, subjective symptoms, objective symptoms, complications, etiology, prognosis and treatment. Operative procedures are described in the chapter dealing with the disease and not in a separate chapter on operations. Chapter XXVI deals with general principles of eye surgery and preparation of the eye for operation as well as ocular therapeutics. The final chapter deals with ocular manifestation in general disease. The book is a compact work on the essentials of ophthalmology. While brief and of little interest to the ophthalmologist, it serves a useful rôle for the medical student and the general practitioner.

Die wissenschaftlichen Grundlagen der Hunger- und Durstkuren. Von Dr. Hans Günther, Professor an der Universität Leipzig. Paper. Price, 8 marks. Pp. 171. Leipzig: S. Hirzel, 1930.

This is a fairly useful treatise on an old subject. The practice of curing disease by fasting runs back to the earliest records of medical therapy. At certain periods the fasting cure has been applied to almost every known malady and there has not been lacking development of this therapy in the direction of fads and cultism. Dr. Günther presents fairly complete historical accounts of the fasting cures. He presents conditions today under which the good doctor may use short periods of complete fasting or periods of undernutrition as useful adjuncts to other therapies. There is no faddism in the book. For example, Dr. Günther says on page 58 that fasting is an unnecessary procedure in adiposity. There are other adequate methods of handling most of these conditions. In rheumatism there is no doubt that in many cases the patient's symptoms are improved by a period of fasting. The symptoms, however, are apt to return on realimentation. The second part of the monograph deals with so-called thirst cures. Dr. Günther uses this term essentially in the sense of dry diets, that is, diets deficient in water. The author ends with the plea (p. 93) for more critical study of the value and the mechanism of the temporary improvement of symptoms by fasting in various diseases.

La rate organe réservoir. Par Léon Binet, professeur agrégé de physiologie à la Faculté de médecine de Paris. Paper. Price, 20 francs. Pp. 116, with illustrations. Paris: Masson & Cie, 1930.

This is a concise and scholarly account of knowledge of the contractivity of the spleen. It is now well established that the spleen acts as a considerable reservoir for the blood, that the musculature of the spleen is so arranged that its contraction forces this blood into the general circulation, and that its relaxation withdraws considerable blood from the general circulation. Binet outlines and describes experiments showing the nervous and humoral mechanisms of this motor behavior of the spleen. A useful and reliable monograph.

Medicolegal

Infringement of Copyright of Medical Papers

(Schellberg v. Empringham (U. S.), 36 Fed. (2d) 991)

One Oscar Boto Schellberg was the president and manager of an institution bearing his name, where treatments known as "colonic therapy" were administered. In June, 1922, an article written by him was published in the *International Journal of Surgery*, entitled "The Incorrigible Colon Corrected by Medicated Irrigation." In January, 1923, another article by Schellberg appeared in the same publication, entitled "Technique of Colon Irrigation." The issues of the *International Journal of Surgery* containing Schellberg's articles were copyrighted by the International Journal of Surgery Company. So far as the copyrights covered Schellberg's particular articles, they were obtained with his acquiescence and held in trust for him. Schellberg procured a number of reprints of his articles, and they were taken to his colonic institute. From time to time they were distributed to his patients and to physicians and other persons. Copies were kept on a stand in the reception room of the institute, where they might be examined or carried away by visitors. The primary purpose of the distribution of these reprints was, it was said, to give information to persons interested in the subject discussed in them and to relieve Schellberg of the necessity of orally explaining his system of treatment to those who might wish to learn about it. None of the reprints carried a notice of copyright of the printed material, but each of them carried an inscription on its cover to the effect that it was a reprint of an article which had appeared in the *International Journal of Surgery*. In 1923, Schellberg developed the subject-matter of his previous articles into a copyrighted book, entitled "Colonic Therapy in the Treatment of Disease."

The defendant Empringham was an Episcopalian minister. He was, in 1924, the superintendent of the Church Temperance Society, closely identified with which was another corporation, the Health Education Society, Inc. In September, 1924, Empringham published a book entitled "Intestinal Gardening for the Prolongation of Youth." It contained a considerable amount of material copied bodily from the *International Journal of Surgery* reprint, for which due credit was given to Schellberg and the *Journal*. It contained also certain cuts that Empringham had obtained from Schellberg. In a later edition of Empringham's book, however, most, if not all, of Schellberg's material that had appeared in the previous edition was incorporated, but none of it was credited to Schellberg. Schellberg thereupon brought suit in the U. S. District Court, S. D., New York, against Empringham and the Health Education Society, Inc., based on the infringement.

Empringham's defense was predicated principally on the contention that his copying had been done from the reprints from the *International Journal of Surgery* and not from Schellberg's book. No copyright protection applied to such reprints, he claimed, because they carried no copyright notice. Moreover, he claimed, such protection as might have been afforded Schellberg's articles by the copyrights on the magazines in which they originally appeared was abandoned when the reprints were publicly distributed. Further defenses, not material to present purposes, were that Schellberg authorized Empringham to copy the reprints and that Empringham, before he began his infringement, had no notice of a copyright on Schellberg's articles.

Coming to the question as to whether the distribution of the unmarked reprints constituted an abandonment of the copyright, said the court, it is to be remembered that such reprints were freely distributed to persons who visited the Schellberg Institute. It is fair to assume that the number distributed was fairly large. The reprints, which are of considerable length, were presumably carried away from the institute for perusal and studied by persons who obtained them. Notwithstanding all this, the court concluded that Schellberg should not be held to have dedicated his articles to the public. The distribution of his reprints which he made and which he authorized Empringham to make was for a specific and limited purpose; namely, for the instruction of the persons who, as prospective patients of the institute, might be interested in the subjects which the articles discussed. The slavishly copied matter taken from Schellberg, whether regarded as having been lifted from Schellberg's articles or from his book, was sufficient, the court concluded, to make out a case of infringement. Judgment was therefore awarded against Empringham and the Health Education Society, Inc., and against the publisher of the second edition of Empringham's book.

Ludwig's Angina After Dental Extraction an Accident

(International Travelers' Ass'n v. Francis (Texas), 23 S. W. (2d) 282)

Marvin Lee Francis employed a regularly licensed practicing dentist to extract a wisdom tooth, rather deeply embedded in the gum. At the time of the extraction there was no swelling of the gums, no redness and no pus. It was necessary to go deeper into the tissues to effect extraction than is ordinarily the case. Infection followed promptly. Within three days, the mouth and gums were badly and perceptibly involved, and in eight days the patient was dead. His life was insured by a mutual assessment accident insurance company, in a policy providing for the payment of $5,000 in event of death caused "solely and exclusively by external, violent and accidental means." Suit was brought to collect the insurance money payable under the policy. The trial court found that the death was accidental but denied recovery because of failure to give proper notice of the death. The court of civil appeals likewise found that the death was accidental but, having concluded that the notice of death was given as required, reversed the judgment of the trial court and rendered judgment in favor of the beneficiary under the policy. The case was thereupon appealed to the Supreme Court of Texas.

The drawing of the tooth and the treatment following, said the Supreme Court, were of course purposeful and not accidental, but the infection was not the necessary or usual result of this purposeful act. It was extraordinary, unusual and very rare. The proper surgical act therefore must have been accompanied by something unexpected, unforeseen and improbable. This unforeseen, unexpected and improbable thing was the injection of the pathogenic organisms into the tissues. Just how they were injected the evidence does not show with mathematical precision, and in the nature of things this can never be done in any case. That they were introduced into the tissues at the time of and as a part of the surgical act of extracting the tooth and treating the lacerated tissues seems to be a logical deduction from the facts proved. The infection was caused either by the entrance of germs on the dental instruments used, or from cotton used by the dentist in his treatment, or by some other means; but at all events germs found their way into the tooth socket, did their deadly work and produced an unusual, unlooked for and unforeseen result, death. There was, in fact, no serious contention but that the death of the insured was "accidental."

The policy, however, did not insure the deceased against accidental death; it insured him only against death caused "solely and exclusively by external, violent and accidental means." The insurer pointed out that there was a distinction between policies which insure against accidental death and policies insuring against death by accidental means. The Supreme Court, however, reached the conclusion that the death was due to "accidental means," within the meaning of the policy, by the following reasoning:

> In order, however, for the recovery on the policy to be affirmed, we *must conclude that the death was produced by accidental means.* We have concluded that it was so produced. There can be no doubt but that the extraction of the tooth was the "means" of infection. This is so regardless of the question as to exactly how and when the pathogenic organisms entered the tissues — whether by contact with the surgical instruments and dressings, and thence into the lacerated tissues, or whether *from some other attendant source. The fact is there was no* infection until the flesh was lacerated by the pulling of the tooth, and the infection followed so closely that we cannot in a practical consideration of the subject separate the time of infection from the time of laceration; nor have the doctors attempted to do so, as shown by their testimony above quoted. In fact, they regard the drawing of the tooth as the cause of the infection. If we consider the drawing of the tooth as the means of infection, then clearly that means was external, violent, and accidental.

The judgment of the court of civil appeals in favor of the beneficiary under the policy was therefore affirmed.

Damages for a Broken Hypodermic Needle

(Alonzo v. Rogers (Wash.), 283 P. 709)

The patient, Alonzo, applied to the defendant, a dentist, to have a tooth extracted. The dentist undertook to inject into the gum, through a hypodermic needle, a suitable anesthetic. In the course of the injection, the point of the needle broke off in the patient's gum. Although a roentgenogram showed approximately the position of the part of the broken needle, all efforts to remove it, even an operation under a general anesthetic, were unsuccessful. The broken part of the needle, it was claimed, had worked upward into the roof of the patient's mouth and caused him much suffering. He sued the dentist, and judgment was rendered in his favor. Thereupon the dentist appealed to the Supreme Court of Washington.

The patient attributed the breaking of the needle to negligence on the part of the dentist. The dentist, however, asserted that it was due to careless movements on the part of the patient, notwithstanding that he had been cautioned not to move. Neither the patient nor his wife, who was with him when the needle was broken, spoke English intelligently, but through an interpreter they denied that the dentist had cautioned him. A dentist, testifying for the defendant, said that in his experience it was not unusual for a needle to break while being used for the injection of fluid to produce local anesthesia. Other dentists called by the defendant testified that the needle used was a standard one, but that, because of the delicacy of the instrument, a needle would sometimes break and become lodged in the mouth of the patient, notwithstanding the utmost care and skill on the part of the operator. One of the expert witnesses called by the defendant testified, however, that a needle is a delicate instrument, "if it isn't used right." There was testimony to the effect that the treatment adopted by the dentist after the accident conformed to that followed by competent dentists. On behalf of the dentist, it was argued that the evidence was not sufficient to warrant the jury in finding that he was negligent in any such substantial degree as to render him liable for the injury, since the only direct evidence was that concerning the injection and the breaking of the needle. The Supreme Court, however, took a different view and held that, considering the degree of care with which the defendant was charged in the use of the hypodermic needle, and in view of his undertaking as a dental surgeon to treat the patient, the evidence presented a question of fact for the jury and warranted it in believing that negligent manipulation of the needle by the defendant caused it to break. We are not unmindful, said the court, of the testimony of one of the dental witnesses, that the needle is a delicate instrument, "if it isn't used right." The testimony that such occurrences are not unusual was not such as to compel the jury to find that the needle was not so negligently manipulated while in the patient's gum as to cause the needle to break. The evidence showed that the needle was of a standard type, and that no injurious results would be expected unless from careless use of it by the operator or unless the patient moved his head during the operation. Both inspection and use of the needle were at the time under the exclusive control of the dentist. While the testimony was conflicting as to whether the patient moved his head and thus broke the needle, the jury found that he did not do so. There was no testimony that the breaking of hypodermic needles by dental surgeons in the gums of their patients was of frequent occurrence. The Supreme Court concluded:

> Surely such results are unnecessary and are not to be anticipated if the proper degree of care is exercised by dental surgeons. If such accidents were frequent, the dentists would quit using hypodermic needles and employ some other method for deadening pain.

The judgment in favor of the patient was affirmed.

Evidence: Expert Witnesses.—Many physicians of well known ability and standing testified as witnesses for the appellant that, in their opinion, the appellee's paralysis did not result from the blows described by him. The record, however, also contains the testimony of a physician who testified as a witness for the appellee, whose opinion differed from that of the appellant's witnesses. *However much we may be impressed by the* evidence of the physicians who testified for the appellant, says the Court of Civil Appeals of Texas, Eastland, we cannot say that their opinion was clearly right and that the contrary opinion of the physician testifying for the appellee was clearly wrong. That is a question of credibility and weight of which we are not to judge. The jury clearly could accept the opinion of one expert rather than the contrary opinion of many experts. To hold otherwise would be tantamount to holding that a jury's verdict, in order to be upheld, must be in favor of the party offering the greater number of expert witnesses to testify as to his contention.—*Texas Employers' Insurance Association v. Clark (Texas), 23 S. W. 405.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, October 27-31. Dr. W. P. Wherry, Medical Arts Building, Omaha, Secretary.

American Academy of Physical Therapy, Boston, October 22-24. Dr. Thomas L. Smyth, 111 North Eighth Street, Allentown, Pennsylvania, Secretary.

American Association of Railway Surgeons, Chicago, November 5-7. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American College of Surgeons, Philadelphia, October 13-17. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Hospital Association, New Orleans, October 20-24. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.

American Physical Therapy Association, Chicago, Oct. 6-10. Dr. C. C. Vinton, 1650 Broadway, New York, Secretary.

American Public Health Association, Fort Worth, Texas, October 27-31. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

Association of American Medical Colleges, Denver, October 14-16. Dr. Fred C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Central Association of Obstetricians and Gynecologists, Kansas City and Excelsior Springs, Missouri, October 9-11. Dr. E. D. Plass, University Hospital, Iowa City, Iowa, Secretary.

Central States Pediatric Society, Memphis, Tenn., November 7-8. Dr. A. H. Parmelee, 310 South Michigan Boulevard, Chicago, Secretary.

Delaware, Medical Society of, Dover, Oct. 14-15. Dr. W. O. La Motte, Medical Arts Building, Wilmington, Secretary.

Medical and Surgical Association of the Southwest, El Paso, Texas, November 6-8. Dr. W. Warner Watkins, Box 1587, Phoenix, Ariz., Secretary.

Mississippi Valley Conference on Tuberculosis, Rockford, Ill., October 14-16. Dr. Robinson Bosworth, Box 1005, Rockford, Secretary.

Missouri Valley, Medical Society of the, Des Moines, Iowa, October 15-17. Dr. Joseph D. McCarthy, 107 South Seventeenth Street, Omaha, Secretary.

Pennsylvania, Medical Society of the State of, Johnstown, Oct. 6-9. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Southern Medical Association, Louisville, Ky., November 11-14. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Virginia, Medical Society of, Norfolk, October 21-23. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.
Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, New York

20: 815-923 (Aug.) 1930

Significance of Thermophilic Bacteria in Pasteurized Milk. L. A. Rogers and W. C. Frazier, Washington, D. C.—p. 815.
*Hygiene of Towel. H. D. Pease and L. C. Himebaugh, New York.—p. 820.
Problems in Public Health Administration. F. C. Ruhland, Syracuse, N. Y.—p. 833.
Report of Visits to Local Registrars of Vital Statistics in Maryland. J. Collinson, Baltimore.—p. 839.
Elusive Features in Epidemiology of Common Cold. W. H. Frost, Baltimore.—p. 843.
Hospital Facilities for Treatment of Cancer. S. M. Wood, New York.—p. 849.

Hygiene of Towel.—The results of the investigation made by Pease and Himebaugh show some of the effects of the use or misuse of towels and the important part towels may play in the spread of bacteria which may be of disease-producing types. Although public health officials have recognized that the skin, especially that of the hands, may be one of the most important modes of transfer of disease-producing organisms, and that diseases other than those of known bacterial origin *may also be readily carried by the same means,* the part played by the misuse of towels and the relative merits of types of towels have not received so much attention. Tests to secure evidence regarding these points indicate that: Bacteria are transferred from the hands to the towel in surprisingly large numbers. Bacteria are readily transferred from one user to another through the medium of the towel. Most of the common disease-producing bacteria, even though in a dry state, may remain alive on the towel for at least twenty-four hours and generally *longer, making the common towel a constant and* continued source of danger. When the towel is used repeatedly by the same individual the numbers of bacteria on and in it are increased and some of these in turn may be restored to the hands of the user. Potential danger exists of a possible reinfection of the hands with disease-producing organisms left on the towel by prior use. Repeated drying with an individual towel is not a good sanitary practice. The Turkish towel, owing to its construction and a consequently greater number of points of *contact with the skin, removes greater numbers of bacteria and* dirt particles from the skin than the huck towel or the paper towel.

Annals of Internal Medicine, Ann Arbor, Mich.

4: 113-210 (Aug.) 1930

In Defense of Stethoscope. J. B. Herrick, Chicago.—p. 113.
Use of Iodine in Exophthalmic Goiter. J. H. Means, Boston.—p. 117.
*Association of Chronic Ulcerative Colitis and Multiple Polyps. J. A. Bargen and M. W. Comfort, Rochester, Minn.—p. 122.
*Etiology of Gallstones. E. L Walsh and A. C. Ivy, Chicago.—p. 134.
*Later Results in Use of Stramonium in Postencephalitic Syndrome. A. L. Jacobson and F. Epplen, Seattle.—p. 145.
Curing Ulcer Patient. S. Harris, Birmingham, Ala.—p. 149.
*Unusual Addison's Syndromes. A. B. Brower, Dayton, Ohio.—p. 166.
History of Certain Medical Instruments. L. Clendening, Kansas City, Kan.—p. 176.

Association of Chronic Ulcerative Colitis and Multiple Polyps.—According to Bargen and Comfort, polyposis of the large intestine is present in 10 per cent of cases of chronic ulcerative colitis. It occurs after severe colitis or in long-standing, slowly progressing colitis in which there is a tendency to recurrent severe exacerbations of the disease. The polyps contain large amounts of inflammatory tissue. Proctoscopic examination is the best means of diagnosis in most cases. Roentgenologic examination gives valuable information in many cases. The authors have had an opportunity to see patients in severe exacerbations of bacterial chronic ulcerative colitis, with formation of polyps later, and finally with malignant disease. Studies are under way to trace the formation of the polyps and their subsequent course in a large series of specimens obtained at operation and at necropsy.

Etiology of Gallstones.—Walsh and Ivy summarize the results of their observations as follows: Human gallstones of the mixed cholesterol variety are dissolved when placed in the gallbladder of the dog. A diffuse fibrous cholecystitis prevents the solution of the gallstone, which is due to the failure of such a gallbladder to concentrate the bile. Concentration of the dog's bile is necessary for solution of the gallstone. They were unable to show that the addition of olive oil or coconut oil to the diet significantly altered the rate of solution of the stone. However, this does not show that such vegetable oils might not be of prophylactic value, since the presence of the gallstones in the gallbladder caused changes in its histologic appearance. Biliary stasis, if it leads to a definite cholecystitis in the dog, definitely delays the solution of the gallstone. Biliary stasis leads to histologic changes in the gallbladder of the dog. The difference in the cholesterol content of dog's bile and human bile per se does not explain why dog's gallbladder bile dissolves the human gallstone. Soap, especially the soap of lauric acid, is a potent solvent of cholesterol and the mixed type of human gallstone. There is a marked difference between the cholesterol-saponifiable ratio in human bile and dog bile, which, the authors believe, explains why gallstones of the cholesterol variety have never been produced in the dog and why the dog's gallbladder dissolves the human gallstone. They have not proved this, however.

Use of Stramonium in Postencephalitic Syndrome.—Jacobson and Epplen regard stramonium as a valuable drug in palliation of the parkinsonian syndrome and associated symptoms. Very large doses are necessary. Toxic manifestations are rare and seemingly evanescent. Fresh preparations should be demanded. Particular caution is necessary against substitution of belladonna for stramonium. There are probably at present unknown alkaloids present in stramonium. The authors have been using U. S. P. standardized preparations, specifying a fresh preparation, in doses beginning in adults with 20 measured minims, three to four times daily, until an optimal dosage is reached, which is usually around 60 measured minims, four times daily, to get the best results. In a few cases sufficient tolerance has developed so that the dose has had to be increased after a few months. This has been progressive in these cases. Sixty minims has been increased to seventy, then to 80 and then to 90 minims. Sometimes the relief from tremor in parkinsonian syndromes is only slight when stramonium is used in spite of striking benefit to the rest of the symptom complex. In these cases it is well to add scopolamine to the medication. Their routine, after the optimal dose of stramonium is ascertained and tremor has not satisfactorily subsided, is to add *scopolamine, 1/150 grain, once or twice daily increasing first to* 1/120, then to 1/100, later to 1/75 and occasionally to 1/60 grain once or twice daily until the maximal inhibition of tremor is attained or until toxic manifestations preclude large doses. Occasionally the larger doses given twice a day are necessary. Scopolamine, however, does not relax the muscular rigidity and other symptoms nearly as well as does stramonium. Toxic manifestations from stramonium have been noted. Nausea prevented one case of parkinsonism from continuing. Mydriasis is always present and troublesome for a time.

Unusual Addison's Syndromes.—In two cases reported by Brower, Addison's syndrome was related to agenesia and hypoplasia of the suprarenals in one case, and to pressure atrophy of the suprarenals produced by congenital polycystic kidneys in the other case.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

11: 391-447 (Aug.) 1930

Resistance of Various Tissues for Various Electric Currents. A. Bachem, Chicago.—p. 391.
Important Facts Concerning Diathermy Machine and Its Current. W. Stenstrom, Minneapolis.—p. 395.
Development and Effect of Deep-Seated Heat in Female Pelvis. G. D. Royston, F. H. Ewerhardt, M. A. Roblee and F. B. Zener, St. Louis.—p. 410.
Further Studies in Problems of Obesity. M. Kern, Chicago.—p. 418.

Colorado Medicine, Denver

27: 275-318 (Aug.) 1930

Peace and Epilepsy. C. S. Bluemel, Denver.—p. 277.
Congenital Clubfoot: Treatment. R. G. Packard and H. I. Barnard, Denver.—p. 281.
*Intravenous Injection of Sodium Chloride Solutions. P. R. Farrington, Boulder.—p. 287.
Natural Periods of Reproductive Cycle in All Placental Mammals Including Man. T. M. Burns, Denver.—p. 290.
Exploration and Certain Operations on Female Pelvis Through Cholecystectomy Incision. C. E. Tennant, Denver.—p. 295.
Acute Anterior Poliomyelitis: Infantile Paralysis. B. B. Jaffa, Denver.—p. 297.

Intravenous Injection of Sodium Chloride Solutions.—Farrington calls attention to the fact that edema and albuminuria may be produced by the intensive administration of sodium chloride solutions intravenously. The benefit derived from the use of physiologic solution of sodium chloride in relieving toxemia is as great as that obtained from the use of hypertonic saline solutions, provided a sufficient volume is given. Physiologic saline solutions are less apt to cause a reaction, or a thrombosis, and are of greater value in dehydration. Hypertonic solutions of sodium chloride should be used when it is necessary to administer large amounts of salt in the preoperative preparation of emergency cases. Isotonic solutions of dextrose should be used in the treatment of dehydration and toxemia when there is evidence of excessive tissue or blood chloride.

Endocrinology, Los Angeles

14: 145-208 (May-June) 1930

Endocrinology and Neurology. P. Bassoe, Chicago.—p. 145.
Action of Pituitrin, Pitressin and Pitocin on Blood Phosphatides. W. Raab, Boston.—p. 150.
Physiologic Properties of Growth-Promoting Extracts of Anterior Hypophysis. H. M. Teel and H. Cushing, Boston.—p. 157.
Does Zondek Pituitary Hormone Influence Growth of Body? P. V. Botchkareff and A. P. Preobrajensky, Moscow.—p. 164.
*Effect of Intraperitoneal Injection of Potassium Iodide on Proliferative Activity of Thyroid Gland in Rats. K. S. Chouke, Denver.—p. 169.
Results of Oral Administration of Amniotin to Monkeys. J. A. Morrell, H. H. Powers, J. R. Varley and J. de Frates, New Brunswick, N. J. —p. 174.

Effect of Intraperitoneal Injection of Potassium Iodide on Proliferative Activity of Thyroid Gland in Rats.—Chouke asserts that the intraperitoneal injection in daily doses of 0.005 Gm. and 0.025 Gm. of potassium iodide in rats for periods of ten, fifteen, twenty and thirty days does not cause any appreciable change in the proliferative activity of the thyroid gland, nor does it produce any noticeable change in the structure or character of the colloid of this organ. The average number of mitoses in the normal thyroid gland of rats is slightly lower than in guinea-pigs. The effect of administration of potassium iodide in the rat is therefore different from that observed in the guinea-pig. There is some indication that, in general, the thyroid gland of the rat is less responsive than the thyroid gland of the guinea-pig to various kinds of stimulation.

Indiana State M. Assn. Journal, Fort Wayne

23: 349-394 (Aug. 15) 1930

Static Defects of Feet. A. Ellison, South Bend.—p. 349.
Comparison of Tuberculin Skin Reactions. B. K. Rust, Indianapolis. —p. 354.
Management of Acute Intestinal Obstruction. J. W. Emhardt, Indianapolis.—p. 356.
Coronary Sclerosis Versus Accidental Injury in Sudden Death: Case. W. D. Inlow, Shelbyville.—p. 362.
Better Business Methods. A. G. W. Childs, Madison.—p. 366.
Irritable Bladder in Women. J. W. Visher, Evansville.—p. 368.

Iowa State M. Soc. Journal, Des Moines

20: 347-394 (Aug.) 1930

Internist's Responsibility for Fruitless Laparotomy. O. H. P. Pepper, Philadelphia.—p. 347.
Diagnosis of Some of More Common Lesions of Upper Abdomen. J. T. Strawn, Des Moines.—p. 353.
Clinical Significance of Roentgen Signs of Common Lesions of Upper Abdomen. A. W. Erskine, Cedar Rapids.—p. 356.
Surgical Procedures in Some of More Common Lesions of Upper Abdomen. C. M. Wray, Iowa Falls.—p. 358.
Heart in Thyroid Disease. J. W. Thornton, Waterloo.—p. 364.
Bladder Neck Obstruction. G. V. Caughlan, Council Bluffs.—p. 369.
Results of Applied Health Work Among Selected Native Populations. M. E. Barnes, Iowa City.—p. 374.
Neoplasms of Envelopes of Nervous System. C. F. Obermann, Iowa City.—p. 376.

Johns Hopkins Hospital Bull., Baltimore

47: 61-122 (Aug.) 1930

Response of Plasma Water and Electrolytes to Elevation of Body Temperature. R. McIntosh, L. Kajdi and D. Meeker, Baltimore.—p. 61.
Response of Blood Guanidine Base Concentration in Normal Individuals and in Patients with Liver Injury to Ingestion of Methyl Guanidine Sulphate. R. M. Ellsworth, Baltimore.—p. 106.
*Disappearance of Diabetes Mellitus During Development of Cirrhosis of Liver. J. Bordley III, Baltimore.—p. 113.

Disappearance of Diabetes Mellitus During Development of Cirrhosis of Liver.—A case is reported by Bordley in which a severe and long-standing diabetes mellitus cleared up as portal cirrhosis of the liver developed. Attention is called to several similar cases reported in the literature. Cases of this nature are apparently rare and the experience of others has shown that portal cirrhosis of the liver does not usually exert such an ameliorating effect on diabetes mellitus.

Journal of Lab. & Clin. Medicine, St. Louis

15: 1055-1176 (Aug.) 1930

Present Status of Problem of Arthritis. R. Pemberton, Philadelphia. —p. 1055.
Recent Studies of Rheumatism, with Special Reference to Gonorrheal Arthritis. R. A. Kinsella, St. Louis.—p. 1062.
*Differential Diagnosis of Rheumatoid and Ostearthritis: Sedimentation Reaction and Its Value. M. H. Dawson, R. H. P. Sia and R. H. Boots, New York.—p. 1065.
*Specific Vaccine Treatment of Chronic Arthritis and Rheumatism. H. W. Crowe, London.—p. 1072.
*Biologic Products of Streptococcus Cardioarthritidis and Latest Developments in Technic of Their Therapeutic Applications. J. C. Small, Philadelphia.—p. 1093.
*Allergic Joint. J. A. Freiberg and S. E. Dorst, Cincinnati.—p. 1109.
Microphotographic Study of Five Varieties of Arthritic Streptococci. D. Thomson and R. Thomson, London.—p. 1117.
Recent Researches on Streptococcal Etiology of Rheumatic Fever. D. Thomson and N. G. Hill, London.—p. 1124.
Nutritional Factor in Chronic Arthritis. A. A. Fletcher, Toronto. —p. 1140.
Traumatic Arthritis and Mechanical Factors in Hypertrophic Arthritis. J. A. Key, St. Louis.—p. 1145.
British Red Cross Society's Clinic for Rheumatism. A. R. Neligan, London, England.—p. 1161.

Differential Diagnosis of Rheumatoid and Ostearthritis: Sedimentation Reaction and Its Value.—The distinct clinical value of the determination of the sedimentation rate of the erythrocytes is emphasized by Dawson et al. in the differential diagnosis of rheumatoid and ostearthritis. However, the test should never be relied on as the sole criterion in the differential diagnosis of the two conditions. This differentiation can usually be made on clinical grounds alone. The determination of the sedimentation time of the red blood cells usually confirms the diagnosis and contributes information of considerable prognostic value in the clinical study of the disease.

Specific Vaccine Treatment of Chronic Arthritis and Rheumatism.—Crowe has used vaccines in the treatment of several thousand cases with steadily improving results. He says that vaccine treatment should not be used only as a last resort in advanced arthritis and rheumatism, where crippling deformities may prevent complete functional cure, but that the method should also be adopted in early cases, in which it is almost invariably successful.

Biologic Products of Streptococcus Cardioarthritidis.—The possibilities of an aqueous extract of *Streptococcus cardioarthritidis* in the treatment of rheumatic fever, as well as chronic atrophic and hypertrophic arthritis, are discussed by Small. In its use the importance of regulating dosage so as to avoid focal and general reactions is emphasized. The present development of the author's technic and its application is recorded. These products and the methods of their therapeutic application are to be regarded as in the developmental stages, so that further modifications are to be expected. A special technic is necessary in the use of the antiserum of *Streptococcus cardioarthritidis* in the treatment of rheumatic fever in order to avoid the undesirable "focal reaction" following serum administration. This technic is presented in detail.

Allergic Joint.—Freiberg and Dorst believe that they have demonstrated the experimental production of an allergic lesion in the joints of rabbits. In cases of joint disease in the human being, they encountered a lesion similar to those produced in rabbits. They are not satisfied that any previous explanation of this type of joint lesion in human beings is adequate. They believe that this lesion in the human being is also allergic and that they have demonstrated the relationship between antigenic substances from distant foci and the diseased joint. The success of treatment, which consists, essentially, in desensitizing patients to autogenous antigens which give positive reactions, seems to justfy this conception.

Kentucky Medical Journal, Bowling Green

28: 361-406 (Aug.) 1930

Schilling's Differential Blood Count. J. D. Allen, Louisville.—p. 363.
History and Reason for Organization of Joint Hospital Committee. J. G. Sherrill, Louisville.—p. 367.
What Has Been Accomplished by the Joint Hospital Committee. S. C. Frankel, Louisville.—p. 368.
What is Hoped to Be Accomplished by Joint Hospital Committee in Future. W. A. Jenkins, Louisville.—p. 370.
Influenzal Pneumonia Treated with Convalescent Serum. M. Flexner, Louisville.—p. 371.
Present Treatment of Tuberculous Joint Disease. W. B. Owen, Louisville.—p. 372.
Modern Methods in Treatment of Pulmonary Tuberculosis. O. O. Miller, Louisville.—p. 376.
Primary Melanosarcoma of Meninges: Case. J. J. Moren, Louisville.—p. 382.
Indications for Cesarean Section. A. N. Pickett, Louisville.—p. 385.
Hoarseness in Children. L. Jacobs, Covington.—p. 389.
Two Unusual Cases of Tularemia. W. J. Young, Louisville.—p. 391.
Clinical Recognition and Importance of Cardiac Arrythmias. H. H. Shook, Cincinnati.—p. 393.
Etiology and Prophylaxis of Abortion. W. T. McConnell, Louisville.—p. 397.
Abortion. G. E. Gaupin, Louisville.—p. 399.

Laryngoscope, St. Louis

40: 549-626 (Aug.) 1930

Color Movies of Vocal Cord Action—Aid in Diagnosis. G. O. Russell and C. H. Tuttle, Columbus, Ohio.—p. 549.
New Operation for Chronic Purulent Mastoiditis. J. M. Smith, New York.—p. 553.
Rare Labyrinthian Disturbances. I. Sommer, Vienna, and L. Savitt, Chicago.—p. 558.
Recurrent Mastoiditis: Case of Bacillus Mucosus-Capsulatus Infection. H. S. Muckleston, Los Angeles.—p. 562.
Chronic Suppurative Otitis Media Associated with Tuberculous Meningitis Presenting Localized Intracranial Symptoms. M. S. Ersner, Philadelphia.—p. 569.
Plasmocytoma of Nasal Cavity. H. Rosenwasser, New York.—p. 576.
Chronic Abscess of Pharyngomaxillary Fossa without Symptoms: Case. I. F. Weidlein, Cleveland.—p. 583.
Dermoid Tumor of Posterior Pharyngeal Wall in Child Ten Months Old. A. O. Freedman, Montreal.—p. 589.
Observations on Agranulocytosis. N. Rosenthal, New York.—p. 592.
Complications of Tonsillectomy. W. Hartz, Philadelphia.—p. 598.
Unusual Laryngologic Conditions. G. B. New, Rochester, Minn.—p. 606.
Misleading Blood Wassermann Reactions. V. K. Hart, Charlotte, N. C.—p. 611.
Sinus Disease and Chronic Cough. J. V. Cassady, South Bend, Ind.—p. 615.

Medical Journal & Record, New York

132: 157-208 (Aug. 20) 1930

Beneficial Effects of Bathing. G. Hinsdale, Hot Springs, Va.—p. 157.
Vaccines: Their Use in Control and Cure of Disease. R. O. Clock, Pearl River, N. Y.—p. 163.
Child in Cardiorheumatic Mêlée. J. Epstein, New York.—p. 166.
Spinal Anesthesia. R. B. Hammond, White Plains, N. Y.—p. 168.
Diagnostics of Penile Lesions. F. A. Diasio, New York.—p. 170. C'en.
Surgical Management of Tubo-Ovarian Infection. H. Pike, New York.—p. 173.
Diagnosis and Treatment of Functional Colon Disorders. S. M. Jordan and E. D. Kiefer, Boston.—p. 175.
Pathologic Appendix. A. F. R. Andresen, New York.—p. 178.
Hernial Appendicitis: Case. L. S. Auster, New York.—p. 180.
Putrefactive Intestinal Toxemia. W. E. Fitch, Bedford, Pa.—p. 183.
Is Pyloric Obstruction in Peptic Ulcer Always an Indication for Surgery? R. A. Rafsky, New York.—p. 187.

Michigan State M. Soc. Journal, Grand Rapids

29: 545-626 (Aug.) 1930

*Angina Pectoris Including Coronary Thrombosis. W. J. Wilson, Detroit.—p. 545.
*Aspects of Management of Coronary Thrombosis and Complications. C. L. Brown, Ann Arbor.—p. 551.
Rôle of Rhinolaryngology in Treatment of Bronchial Asthma. E L. Whitney, Detroit.—p. 555.
Tuberculosis in Childhood. M. D. Jacoby, Detroit.—p. 558.
*Hormone Influence in Rickets. M. B. Kay, I. G. Macy and C. F. Shokers, Detroit.—p. 561.
Subarachnoid Anesthesia. C. A. Teifer, Muskegon.—p. 564.
Causes of Failure of Pollen Treatment for Hay-Fever. G. L. Waldbott, Detroit.—p. 567.
Observations on Anesthesia in Obstetrics. H. A. Furlong, Pontiac.—p. 569.
*Treatment of Hay-Fever by Anterior Ethmoidal Injection. H. Byrd, Detroit.—p. 573.
Problems of Industrial Medicine. C. S. Gorsline, Battle Creek.—p. 576.
Michigan's Department of Health. C. C. Slemons, Lansing.—p. 578.

Angina Pectoris Including Coronary Thrombosis.—Ninety-three cases are analyzed by Wilson. Aortic enlargement was present in 31 cases. As far as etiology is concerned, infection seems to play an important rôle. To syphilis has been attributed too much significance in this connection. There were only 5 positive Wassermann reactions out of 44 tests that were made. The average pulse rate in the series was 82. Irregularity of the heart was not common, only 9 cases of premature systoles and 2 cases of auricular fibrillation being noted. In the series of cases, those presenting substernal pain alone numbered 21; substernal and down the left arm only, 43; substernal and down the right arm alone, 2; substernal and down both arms, 26; substernal and radiating to the neck, 7; epigastric, 6; nocturnal attacks, 8. Electrocardiograms were made in 57 cases of this series. The chief abnormality is a negative T-wave, which was present in 32 cases; in lead I alone in 8 cases; in II only in 3 cases; in III alone in 12 cases; in leads I and II in 4 cases; in leads II and III in one case; in leads I and III in 4 cases; in lead I in 1 case, and in all leads in 1 case. There was a cove-shaped T-wave in 12 cases. The urinary observations in this group were unimportant. In the blood-nitrogen tests made, no marked changes were found.

Management of Coronary Thrombosis and Complications.—Brown says that during the acute attack two important features are observed: the terrific painful discomfort and the state of shock. How is the pain to be relieved? This is one condition in which very large doses of morphine are justified. The initial dose may be one-half grain (0.03 Gm.). The morphine not only aids in relieving the pain but also helps to produce mental and bodily rest. Glyceryl trinitrate may be tried but should not be used if the systolic blood pressure is 100 mm. or lower. Very occasionally light ether anesthesia may be justified to relieve the pain. Shock in coronary thrombosis is to be managed much the same as when found in other conditions, except that stimulation is to be avoided if the peripheral blood pressure is sufficient to maintain adequate circulation. A systolic blood pressure of 100 mm. of mercury is usually taken as a criterion of sufficiency. If the pulse is imperceptible, caffeine sodiobenzoate, from 0.5 to 1 Gm., may be given intravenously; or strophanthin, 1 mg., intravenously; or epinephrine, 0.5 cc., intramuscularly may be used. In general, intravenous therapy, such as fluids in large amounts, is to be avoided as a greatly increased volume of fluid injected directly into the blood stream may embarrass the circulation still further. The body should be kept warm by blankets, hot-water bottles, or other forms of local application. An important caution is to do nothing that will cause the patient any muscular exertion. The physician should refrain from elaborate examination, and visitors are to be restricted. After the patient has passed through the attack of pain and is fairly comfortable, absolute bed rest still is imperative. He should remain as quiet as possible for several days. The continued use of morphine may be justified for several days; however, in many instances the common sedatives, such as bromide or phenobarbital may suffice. He should be spared the effort of feeding himself for the period of three days to one week. He should not have to use the bed pan more than once daily; slight constipation is a desirable occurrence during the first few days. The patient should remain at rest in bed for at least one month, and preferably for from six to eight weeks. Under no circumstances should he be allowed to get up before the end of one month. Rupture of the heart may happen up to the end of the second week or even later after the onset. During the period of recovery little in the way of treatment, other than that described, is necessary unless complications arise.

Hormone Influence in Rickets.—Kay et al. report that rachitic rats kept on a rachitogenic diet to which only thyroid gland has been added show healing by the line test. The dose of thyroid for rats seems fairly well established. The "hormone" seems to have a curative effect in rickets.

Treatment of Hay-Fever by Anterior Ethmoidal Injection.—Byrd points out that, as compared with immunization methods, the injection of the anterior ethmoid nerves for hay-fever appears to have the following advantages: It is as applicable after the onset as before, it eliminates the allergic tests for the offending pollen, it involves little loss of time for the patient and much conservation of energy for the physician, it eliminates the unhappy reactions occasionally encountered in desensitization, it yields a larger percentage of positive results, and, finally, it is applicable to seasonal and nonseasonal types alike. The foregoing considerations would seem to make injection of the anterior ethmoidal nerves the procedure of choice in the treatment of hay-fever. It is perhaps the only procedure applicable with marked success to those cases of hay-fever in which desensitization fails, while well nigh the only procedure applicable with any considerable success to the other disorders mentioned under such terms as vasomotor rhinitis, hyperesthetic rhinitis and nasal hydrorrhea.

New England Journal of Medicine, Boston

203: 341-390 (Aug. 21) 1930

Forceps, Version or Cesarean Section? F. L. Good, Boston.—p. 341.
Useful Office Procedures in Gynecologic Therapy. W. T. Dannreuther, New York.—p. 351.
Observations on Present Status of Low Cervical Cesarean Section. C. W. Sewall, Boston.—p. 356.
Observations in Toxemic Clinic, Boston Lying-In Hospital, 1923-1930. S. Berman, Boston.—p. 361.
Closed Pneumolysis, or Jacobeus Unverricht Operation as Aid in Artificial Pneumothorax. J. B. Hawes 2d and Moses J. Stone, Boston.—p. 366.
Slipshod Surgical Diagnosis. H. G. Wetherill, Monterey, Calif.—p. 367.

203: 391-440 (Aug. 28) 1930

*Acute Empyema. E. A. Locke, Boston.—p. 391.
*Abnormal Labor as Etiologic Factor in Mental Deficiency and Other Associated Conditions. N. A. Dayton, Boston.—p. 398.
Diphtheria Prevention in Lowell, 1928 and 1929. J. J. McNamara and G. M. Sullivan, Lowell, Mass.—p. 413.
Diagnosing Pulmonary Tuberculosis as Another Condition. L. R. Williams and A. M. Hill, New York.—p. 418.
Psittacosis: Four Cases. H. E. Wellman, Providence, R. I.—p. 421.
Nitrobenzene Poisoning; Sodium Fluoride Poisoning. W. W. Fullerton, Brockton, Mass.—p. 423.
Progress in Psychiatry. I. H. Coriat, Boston.—p. 424.

Acute Empyema.—Locke has studied 478 cases to determine any relation that may exist between the type organism and the nature and course of the disease. The overwhelming majority of cases were secondary to pneumonia. The organisms most commonly found in the pleural exudate in empyema are the pneumococcus, *Streptococcus hemolyticus*, nonhemolytic streptococcus and *Staphylococcus aureus*. The general incidence of the pneumococcus and hemolytic streptococcus in the entire group of empyemas is 58 and 18.4 per cent, respectively, or 76.4 per cent if combined. Among the 417 cases with known bacteriology, 89.4 per cent were due to these two organisms. The incidence of the nonhemolytic streptococcus is 3.9 per cent, the staphylococcus 5.2 per cent, mixed infection and unknown 6.6 per cent and pus sterile 7.9 per cent. The overwhelming importance of the pneumococcus type I infection is evident from the fact that it constitutes 48.4 per cent of the total 417 cases of known bacteriology and 73 per cent of the 277 cases of pneumococcus infection. Types II, III and IV show an incidence in the whole series of 5.2, 2.7 and 7.9 per cent, respectively, indicating an insignificant position etiologically and in this respect comparable to the staphylococcus and the nonhemolytic streptococcus. The relation between age and the incidence of empyema is an important one. One third of all cases occurred in children under 10 years of age and 76 per cent in individuals under 40. Pneumococcus type I is the organism of the young, as in pneumonia. The average age of all patients with type I infection was 19. Type III, on the other hand, is the organism of older people, the average age in all typical cases being 45 years. Type II occurs in individuals of average age midway between types I and III; namely, 38 years. the type IV series shows an average age of 28 years. Blood cultures were made in 185 cases and found positive in one third. In general, bacteremia seems to be of much less prognostic significance in empyema than in pneumonia. The mortality was twice as great in the positive cases as in the negative, but even then only slightly above the death rate for all empyemas. There is no evidence that cases of empyema die of septicemia. Complications are common in empyema (265 in 478 cases) and are chiefly focal infections. Type I pneumococcus infections are especially prone to complications. The death rate with respect to the various organisms found in the empyema fluid is as follows: pneumococcus type I, 11.3 per cent; type II, 36 per cent; type III, 38.5 per cent; type IV, 29.7 per cent; all forms of pneumococci, 17.5 per cent; hemolytic streptococcus, 34 per cent; nonhemolytic streptococcus, 5.2 per cent; staphylococcus, 20.7 per cent; and finally for the total of 478 cases, 23 per cent. The death rate in the group of 416 cases treated by permanent drainage is as follows: pneumococcus type I, 9.8 per cent; pneumococcus type II, 21.0 per cent; type III, 20 per cent; type IV, 22.6 per cent; undetermined, 14.3 per cent; hemolytic streptococcus, 23.7 per cent; nonhemolytic streptococcus, 0.0 per cent; *Staphylococcus aureus*, 13.0 per cent, undetermined, 29.3 per cent; and finally for the total of 416 cases, 15.9 per cent. Age seems to play an important part in the mortality of empyema. In infancy the death rate is high, falling abruptly after the fifth year, but after this period the older the age groups, the higher the death rate. This increase in death rate with each decade is, however, considerably less striking and constant than in pneumonia.

Abnormal Labor as Etiologic Factor in Mental Deficiency.—Dayton outlines the Massachusetts system for the psychiatric examination of retarded school children, which has been in operation since 1915. A total of 43,975 examinations has been completed by fifteen of these traveling psychiatric school clinics. The Fernald ten-point scale examination is used. A total of 20,473 consecutive first examinations completed by six of the traveling clinics has been studied with the purpose of determining whether there is a relationship between abnormal labor conditions and various characteristics of the child. The study reveals that abnormal labor is in association with various mental, physical and emotional characteristics of retarded school children, apparently irrespective of the intelligence of the children involved. Whatever effect birth trauma may have on the various factors studied, it appears to exert this influence impartially on the two groups, whether mentally defective or not mentally defective. The results render imperative immediate study of the demonstrated association between abnormal labor and children in the higher intelligence groupings; that is, those in the dull normal or low normal classifications. They also point out the great need for additional study of the newly demonstrated relationships between abnormal labor and physical and emotional factors. These may prove to be of more vital importance than the association between abnormal labor and certain grades of intelligence.

New Jersey Medical Society Journal, Orange

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Cancer Problems Which Demand Immediate Attention of Medical Profession. J. C. Bloodgood, Baltimore.—p. 651.
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Partial Gastrectomy in Cancer of Stomach: Case. J. S. Reitnauer, Hoboken.—p. 657.
Hypocalcemia with Lowered Basal Metabolism and Tendency to Bleeding: Case. H. I. Goldstein, Camden.—p. 660.
Tuberculosis and Pregnancy. I. Willner, Newark.—p. 662.
Outline: Tuberculosis (Pulmonary). M. W. Curran, Chatsworth.—p. 664.
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Ophthalmologic Pictures and Significance. E. B. Miller, Philadelphia.—p. 674.
Problems of Medical Charity. L. Emerson, Orange.—p. 676.

New York State Journal of Medicine, New York

30: 887-950 (Aug. 1) 1930

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Eye as Indicator of Systemic Diseases. L. L. Albert, Yonkers.—p. 897.
Ocular Tuberculosis Still Comparatively Uncommon Diagnosis in Clinical Ophthalmology. M. L. Lerner, Rochester.—p. 899.
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Device to Control Fecal Incontinence. A. A. Landsman, New York.—p. 909.
Hay-Fever: Diagnosis. A. A. Thommen, New York.—p. 911.
Low Voltage Roentgen-Ray for Therapeutic Menopause. J. C. Potter, Rochester.—p. 915.

Physical Therapeutics, New York

48: 337-384 (July) 1930

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Roentgen and Radium Treatment of Toxic Goiter and Hyperthyroidism. J. T. Stevens, Montclair, N. J.—p. 343.
Choice of Physical Measures in Treatment of Some Ear, Nose and Throat Conditions. C. R. Brooke, Newark, N. J.—p. 351.
Physical Therapeutic Treatment of Subacromial Bursitis. G. E. Deering, Worcester, Mass.—p. 362.
Value of Electrical Testing in Nerve Injury. E. P. Cumberbatch, London, Eng.—p. 367.

Southwestern Medicine, Phoenix, Ariz.

14: 361-404 (Aug.) 1930

Organic Internal Splinting of Fractured or Detached Olecranon. W. L. Bell, Oakland, Calif.—p. 361.
Management of Pneumothorax Patient. C. S. Kibler and S. H. Watson, Tucson, Ariz.—p. 362.
Tuberculosis of Bowel from Standpoint of Roentgenologist. J. L. McKnight, Tucson, Ariz.—p. 365.
Volkmann's Ischemic Contracture: Presentation of Case with Moving Pictures. A. C. Carlson, Jerome, Ariz.—p. 367.
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Some Epidemiologic Studies. O. C. West, Phoenix, Ariz.—p. 370.
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Malignant Tumors of Thyroid, with Report of Case. E. P. Palmer, Phoenix, Ariz.—p. 376.
Report of Case of Mitral Stenosis with Unusual Clinical Manifestations. J. E. Morrison, El Paso, Texas.—p. 378.

Surgery, Gynecology & Obstetrics, Chicago

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Cystic Dermoid Tumor of Spinal Cord. J. Fraser, Edinburgh, Scotland.—p. 162.
Varicose Veins and Treatment by Injection Method. R. W. Stuebner, St. Louis.—p. 169.
*Acute Pancreatitis. E. L. Eliason and J. P. North, Philadelphia.—p. 183.
*Obstetric Analgesia. J. T. Gwathmey, New York.—p. 190.
Hemorrhage and Shock in Traumatized Limbs. E. Parsons and D. B. Phemister, Chicago.—p. 196.
Influence of Transverse Upper Abdominal Incision on Incidence of Postoperative Pulmonary Complications. D. F. Jones, Boston and W. L. McClure, Yakima, Wash.—p. 208.
Renal Resection: Experimental Study of Postoperative Function. R. H. Herbst and H. J. Polkey, Chicago.—p. 213.
*Useful Semianesthesia from Luminal. W. Bartlett and W. Bartlett, Jr., St. Louis.—p. 217.
Uranostaphylorrhaphy. G. Gatti, Florence, Italy.—p. 224.
Surgical Management of Pharyngo-Esophageal Diverticulum. F. H. Lahey, Boston.—p. 227.
Significance of Renal Counterbalance in Renal Surgery. F. Hinman, San Francisco.—p. 237.
Carcinoma and Tuberculosis of Stomach. D. H. Sprunt, New Haven, Conn.—p. 245.
*Congenital Dislocation of Hip. R. Soutter, Boston.—p. 249.
Mechanical and Anatomic Principles of Operations for Drop Foot. L. C. Snow, Salt Lake City.—p. 252.
Hernia of Ovary and Fallopian Tube: Twenty-Five Cases. C. P. G. Wakeley, London, England.—p. 256.
Rupture of Spleen: Twenty-Seven Cases. L. Dretzka, Detroit.—p. 258.

Acute Pancreatitis.—According to Eliason and North, acute pancreatitis is not an extreme rarity and is entitled to more serious consideration than is customarily accorded it. The etiology is not understood, although considerable experimental data have accumulated. Cholecystitis is certainly a prominent factor. The correct diagnosis was made before operation in not more than one third of the cases reported in the literature. The character of the pain and the appearance of cyanosis are the most distinctive of the diagnostic criteria. The mortality in all the collected cases is 51 per cent. The accepted mode of treatment by emergency laparotomy may not be the best one. Experience favors dealing with these cases as one would with an uncomplicated acute cholecystitis or an acute salpingitis; namely, deferring the operation until after the acute phase, unless an occasion arises demanding immediate surgical intervention. A train of distinctive complications, for the most part incident to operative intervention, increases the hazard of early operation.

Obstetric Analgesia.—The formula used in more than 20,000 cases of obstetrics according to Gwathmey consists of: quinine alkaloid, 20 grains; alcohol, 40 minims; ether, 2½ ounces; liquid petrolatum or olive oil, sufficient to make 4 ounces. The final technic involves (1) three intramuscular injections of magnesium sulphate, each of 2 cc. of a 50 per cent solution; (2) an injection of morphine sulphate, ¼ grain, given with the first injection of magnesium sulphate only; (3) a rectal instillation of the foregoing formula. The medication varies in its results from a slight sedative effect to analgesia with unconsciousness, and amnesia. The progress of labor is not delayed. Occipitoposterior positions rotate in about the same proportion as in normal labor. Postpartum hemorrhage is less than with any inhalation method. If anything, the use of forceps is decreased, and the baby, as a rule, is born crying. Morbidity of the mother is decreased, and no fetal deaths attributable to the analgesia have occurred. Certain patients do well with the intramuscular injections of magnesium sulphate alone, or with the rectal instillation alone, but the best results are obtained when the full technic is used. When the patients come in with the cervix four fingers dilated, they are relieved considerably of pain with the intramuscular injections of magnesium sulphate, with or without morphine. There need be no fear in using the technic in cases of contracted pelvis or disproportion between baby and pelvis when a trial labor is indicated, for many will deliver normally. If they do not deliver, they have a great deal more reserve strength with which to withstand a hard forceps delivery or cesarean section. Patients who go through labor with the synergists have less postpartum fatigue and consequently less morbidity. They feel better and insist on getting out of bed early.

Useful Semianesthesia from Phenobarbital.—A surgical anesthesia produced by phenobarbital and nitrous oxide gas (at times ethylene) has impressed the Bartletts with certain definite advantages. There are no harmful preoperative anticipations. During the operation a surprisingly small quantity and concentration of gas has been required for complete satisfaction; consequently, cyanosis and bleeding are diminished, while hemostasis assumes a new and unwonted facility. After operation, one sees practically no sweating and comparatively rarely any nausea. The postoperative administration of fluids by mouth has in consequence largely supplanted the hypodermic and intravenous methods. There is, too, a welcome postoperative oblivion of many hours' duration (fifty-six hours in one instance). It is unusual for the patient to recall any incident from the day of operation. Phenobarbital alone makes the ideal preparatory drug in doses of from 12 to 30 grains (0.8 to 2 Gm.), given three hours before operation; it is rarely vomited; and no "supplementary" is needed as a rule. The dose, from 12 to 30 grains, has not harmed any adult, while 30 grains controlled perfectly the wildest toxic thyroid patient imaginable, who had entered the hospital only ten days before operation, with a basal metabolism rate of + 122.

Congenital Dislocation of Hip.—Soutter describes his operation as follows: An incision is made from the anterior superior spine of the ilium to 2 cm. below the top of the trochanter and then backward and upward. The soft parts are reflected upward, thus exposing the capsule of the joint; a slot is made through the outer and inner table of the ilium just above the head of the femur and extending some distance posteriorly and anteriorly. This slot is cut with an osteotome and is made sufficiently broad and long to hold a good size piece of bone. A square is cut from the outer table of the ilium above this and separated from the ilium at its lower edge and at its sides, while the upper edge remains in contact with the ilium. A graft is taken from a portion of the trochanter and the adjoining neck and shaft of the femur posteriorly (or anteriorly) and cut thick and large enough to cover a wide space above the head of the femur. This method of securing the graft simplifies the operation and eliminates the necessity of making a separate incision to obtain the graft. The graft is driven into the ilium. The square piece of bone, which was cut from the outer table of the ilium above the acetabulum, is lowered and remains in contact with the ilium at its upper edge. Its lower edge is fastened to the outer edge of the femoral graft with one catgut suture. The soft tissues hold this in place as they are firmly sutured over it. Its upper edge may be shortened in the middle, making this piece of bone longer at the sides than in the middle. These longer sides can be fitted into slots in the ilium, if necessary.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 169-200 (Aug. 2) 1930

Acute Perforating Duodenal and Gastric Ulcers. J. H. Watson.—p. 169.
Two Apparently Unrelated Outbreaks of Bacillary Dysentery. A. T. W. Powell.—p. 173.
*Diagnosis of Brain Abscess. H. V. O'Shea.—p. 175.
*Treatment of Bone Tuberculosis by Large Amounts of Vitamins A and D. C. L. Pattison.—p. 178.
Treatment of Acute Puerperal Inversion. N. Hypher.—p. 179.
Perforation of Silent Duodenal Ulcer Coincident with Perforated Appendix. D. F. McCarthy.—p. 180.
Painless Hematuria. J. C. Ainsworth-Davis.—p. 181.
Two Unusual Cases of Intussusception. E. Lyles and F. Whitrow.—p. 181.
Series of Gastric Perforations. R. Reynolds.—p. 181.
Bilateral Ranula in the New-Born. A. H. Turner.—p. 182.

Diagnosis of Brain Abscess.—The case reported by O'Shea shows that an intracranial condition may coexist with chronic mastoid disease and cause few or no symptoms. The patient had chronic suppuration in a dense acellular mastoid with a minute antrum. Instead of draining, as it normally should, into the tympanic cavity and thence through a perforation in the drum (which it eventually did, but too late), it burrowed its way gradually through the tegmen and dura, forming adhesions in its course, into the temporal lobe, there forming a small chronic abscess. Ultimately, for some unknown reason, an acute otitis media arose, and the pus under pressure caused a perforation of the membrana tympani but spent most of its energy intracranially. Rupture of the abscess occurred, with subsequent meningitis. Nobody had ever heard the patient complain of ear trouble; it was said that she always seemed very healthy and enjoyed life. The appearance of the drum membrane on examination would seem to bear out this history.

Treatment of Bone Tuberculosis by Vitamins A and D.—Pattison used two preparations. One gave 150 blue with the antimony trichloride test, and has about twenty times the vitamin A potency of cod liver oil. It also contained 10,000 antirachitic units per cubic centimeter. The other had double the vitamin A content of preparation 1 (that is, 300 blue), but only 100 antirachitic units per cubic centimeter. Forty-three patients were given large doses of these preparations while thirty-five patients were given 10 cc. of cod liver oil daily. The latter were intended to act as controls and were selected because they had degrees of infection and bone invasion similar to certain patients in the other group of cases. The patients included in these tests were of varying ages—from 3 to 15 years—and in both groups there were cases with early disease, with acute rapidly progressing disease, with chronic slowly increasing disease, and with disease in which recalcification of bone was commencing. Of the forty-three patients, fifteen were given an average dose of 7.8 cc. of preparation 1 daily for an average period of 3.5 months, and were then given an average dose of 9.4 cc. of preparation 2 for a further average period of 3.4 months. The remaining twenty-eight patients were given an average dose of 9.6 cc. of preparation 2 for an average period of 4.1 months. The thirty-five control patients were given 10 cc. of cod liver oil daily during the period of investigation. All the patients, including the controls, got a fair supply of vitamin A and D, but those receiving the special vitamin preparations 1 and 2 had much more vitamin A than the others. Of the forty-three patients having the vitamin preparations, thirty-two were improved clinically and eleven were not; in twenty-five of these forty-three cases the roentgen rays showed arrest of disease or increased calcification, while in eighteen there was no evidence of such improvement. Of the thirty-five patients taking cod liver oil, twenty-five were clinically improved and ten were not. The roentgenograms of eighteen of these thirty-five indicated progress toward cure, while those of seventeen did not. Therefore, for the types of patients described, and with the dosages and under the other conditions mentioned, the use of preparations containing large amounts of vitamins A and D does not appear to be of more curative value than that of cod liver oil.

2: 201-236 (Aug. 9) 1930

Recent Advances in Physiology of Menstruation. D. J. Cannon.—p. 201.
*Subacute Combined Degeneration of Cord in Primary Anemia of Fowl: Its Pathogenesis and That of Associated Lesions. J. P. McGowan.—p. 204.
*Thoracic Stomachs: Study of Pharyngeal Pouch and Cardiospasm; Three Cases. A. W. Adams.—p. 208.
Bone Tumor from Ancient Egypt: Two Cases. R. A. Gardner and A. L. Urquhart.—p. 211.
*Spontaneous Subarachnoid Hemorrhage, with Korsakoff's Psychosis. A. W. Cubitt.—p. 212.
Ruptured Liver: Suture. G. H. Steele.—p. 213.
A Pathologic Monocyte. R. Craik.—p. 213.
Idiopathic Hemorrhage in the New-Born. J. M. Boyd and J. A. Elliot.—p. 213.

Combined Degeneration of Cord in Primary Anemia of Fowl: Its Pathogenesis and That of Associated Lesions.—In seven fowls, lesions of the cord, indistinguishable from those described as occurring in subacute combined degeneration of the cord in human beings, have been found by McGowan. In all the cases this has been associated with the existence of a high degree of hemosiderosis of the liver, spleen and kidney, and also of the mucosa of the duodenum, when this was examined. In three cases there was also marked sclerosis of the bones, with great diminution in the quantity and marked change in the appearance of the marrow. The marrow, when examined microscopically, has been found to be abnormal in all the cases. In some it showed atrophy or aplasia; in others, considerable diminution, accompanied by great increase and distention of the venous sinuses; while in others it showed a hemocytoblastic hypertrophy, such as one finds typically in active pernicious anemia of the fowl. In some of the cases there was comparatively little alteration in the circulating blood. In one case, however, there was considerable reduction in the hemoglobin percentage and number of red blood cells, while in others there was evidence of blood instability, as shown by the presence of erythroblasts. McGowan concludes that pernicious anemia is the involvement of the bone marrow in an irritative process which causes it to revert to embryonic cell formation. The resulting anoxemia causes, secondarily, the complications to be found in the central nervous system, the stomach and the liver (later stages). There is no evidence for the existence of a "pernicious anemia diathesis" in relation either to the disease as a whole or to the organ complications.

Thoracic Stomachs.—Theories are mentioned by Adams which encourage the belief that there is defective neuromuscular action at the esophageal exit, but whether this is inherited, brought on by the irritation of imprudent feeding, reflex from distant foci of disease, or the result of local neural degeneration, further research must prove. It is probable, he says, that a neuromuscular dysfunction at susceptible transition points in the gullet raises the pressure of ingesta. This effect expresses itself by different forms of dilatations. The inherent weakness in the posterior aspect of the hypopharynx produces a hernia of the mucosa. By contrast, in the epiphrenic region, the esophageal walls respond to the hypertension within by a typical uniform dilatation and hypertrophy. From such origins spring the substernal and epiphrenic stomachs. They are likely to continue to vex the human race, evoke the discernment of the physician, elude prophylaxis, and require most skilful surgery to relieve them. In pharyngeal pouch, two-stage diverticulectomy is the best remedy, while cardiospasm in the early stages will respond to mere dilation with bougies, which is best done with the aid of the radiographic screen. Where this fails, Mikulicz's digital dilation, by means of a gastrotomy, is necessary and effective. By reason of the comparative infrequency of these conditions, their deep situation and the vital structures around them, their treatment calls for special care and skill.

Spontaneous Subarachnoid Hemorrhage, with Korsakoff's Psychosis.—Cubitt cites the case of a man, aged 57, who had recurrent subarachnoid hemorrhages, and from each succeeding hemorrhage the recovery was less complete. He developed Korsakoff's psychosis, and finally died seven days after the first hemorrhage. The diagnosis was confirmed at necropsy. The sudden appearance of pupillary and pyramidal tract signs with each fresh hemorrhage, and their rapid disappearance after the relief of pressure by lumbar puncture, was an interesting feature of the case.

Glasgow Medical Journal

33: 49-96 (Aug.) 1930

Complications Arising from Nasal Sinusitis. J. Adam.—p. 49.
Present Position of Psychotherapy. D. Yellowlees.—p. 58.
*Short Study of Nephritis in Children. K. J. Guthrie.—p. 61.
Infective Diarrhea of Children, Glasgow, 1929. H. R. Hay.—p. 70.

Short Study of Nephritis in Children.—The glomerular type of nephritis preponderated in twenty-two of the thirty-six cases falling into this category reviewed by Guthrie. A striking feature of the acute glomerular lesions is the relatively slight degree of pathologic change demonstrable, death having taken place in some cases in which the only glomerular lesion present was acute congestion of the capillaries. It is also of interest that the majority of cases of glomerular nephritis gave no history of previous acute illness to which the inflammatory renal condition might be attributed. In the more chronic cases, naked-eye examination failed to give any indication of the degree of the histologic changes present. The cases with marked chronic tubular lesions were apparently from the histologic *changes in the glomeruli, of an inflammatory,* rather than of a degenerative, nature. From a general survey of these thirty-six cases of nephritis in children, it would appear that classification on naked-eye examination is more difficult than in adults, and that in most cases a definite diagnosis of the type of renal lesion present is not possible without microscopic examination.

Indian Journal Medical Research, Calcutta

18: 1-359 (July) 1930

Effect of Ether on Fixed Virus in Infected Brains of Sheep. K. R. K. Iyengar and W. A. Beer.—p. 1.
*Action of Opium and Narcotine in Malaria. R. N. Chopra and R. Knowles.—p. 5.
*Action of Opium in Diabetes. R. N. Chopra and J. P. Bose.—p. 15.
Physical Properties of Different Blood Sera: Filariasis. R. N. Chopra, S. G. Choudhury and S. Sunder Rao.—p. 27.
*Narcotine: Pharmacologic Action and Therapeutic Uses. R. N. Chopra, B. Mukherjee and B. B. Dikshit.—p. 35.
Distribution of Lathyrism in United Provinces and Cause: Description of 4¾ Months Feeding Experiment on Tonga Ponies with Botanically Pure Cultures of Lathyrus Sativus and Vicia Sativa. H. Stott.—p. 51.
Cryoscopy of Calcutta Milk. A. D. Stewart and N. L. Banerjea.—p. 57.
Electrical Conductivity of Bengal Waters. A. D. Stewart and N. K. Chatterjee.—p. 71.
Method of Locating Urease Within Tissues by Microchemical Method. P. B. Sen.—p. 79.
Disinfection and Sterilization: Chemical Constitution of Terpenes and Disinfecting Properties. P. K. De.—p. 83.
Id.: Composition of Essential Oils and Disinfecting Properties. V. Subrahmanyan.—p. 91.
Two Intestinal Protozoa of Indian Turtle. R. Knowles and B. M. Das Gupta.—p. 97.
Differentiation of Leishmania Tropica from Parasite of Dermal Leishmanoid. B. M. Das Gupta.—p. 105.
Use of Ammonium Molybdate in Kuttner and Cohen's Method of Micro-Estimation of Phosphates. S. Ranganathan.—p. 109.
Bacteriophage in Bacillary Dysentery and Cholera. J. Taylor, S. D. S Greval and U. Thant.—p. 117.
*Pathology of Chronic Colitis in Tropics. T. Bhaskara Menon.—p. 137.
Agglutinogenetic Powers of Rough and Smooth Variants of B. Typhosus *and Mutual Immunologic Relationship.* S. M. K. Mallick and M. G. Coombes.—p. 143.
Dysenteries of Madras District. L. Dunbar and E. D. Stephens.—p. 149.
Female of Phlebotomus Nicnic Banks, 1919. J. A. Sinton.—p. 165.
New Species and Records of Phlebotomus from Africa. J. A. Sinton.—p. 171.
Indian Species of Genus Phlebotomus: Phlebotomus Maynei N. Sp. J. A. Sinton.—p. 195.
Field Method for Estimation of Salinity of Water in Mosquito-Breeding Places. *J. A. Sinton and N. D Kehar.—p. 199.*
Aspects of Behavior of Cinchona Alkaloids Toward Living Cells. N. D. Kehar.—p. 203.
Morphology of Plasmodium Falciparum: Finding in Two Fatal Cases of Malaria. R. Row.—p. 221.
Interrelationship of Some of Important Endocrine Glands: Part They Play in Influencing Color and Texture of Skin. J. P. Bose.—p. 227.
Dextrose and Levulose Tolerance Curves in Various Conditions. T. A. Hughes and K. S. Malik.—p. 249.
Jungle in Relation to Malaria in Bengal. M. O. T. Iyengar.—p. 259
Ultraviolet Absorption Spectra of Sera in Tropical Diseases: Kala-Azar. T. C. Boyd and B. K. Bose.—p. 267.
*Rôle of Urinary Colloids in Prevention of Stone Formation. C. Newcomb.—p. 275.
*Pernicious Anemia of Pregnancy: Survey of Dietetic and Hygienic Conditions of Women in Bombay. L. Wills and S. N. Talpade.—p. 283.
Id.: *Determination of Normal Blood Standards for Nutritional Laboratory's Stock Albino Rat* L. Wills and M. M. Mehta.—p. 307.
Correlation Between Incidence of Filarial Infection in Human Host and in Insect Carrier in Relation to Terrain. V. T. Korke.—p. 319.
Characters of Filarial Endemic Areas in Bihar and Orissa. V. T. Korke.—p. 333.
Rat Fleas and Transmission of Plague. W. J. Webster and G. D. Chitre.—p. 337.
Blood Meal of Sandflies Investigated by Means of Precipitin Antisera. R. B. Lloyd and L. E. Napier.—p. 347.

Action of Opium and Narcotine in Malaria.—Experiments made by Chopra and Knowles failed to elicit any evidence to show that opium has any prophylactic or curative effect in malaria. The alkaloid narcotine even in such large doses as 10 to 15 grains (0.65 to 1 Gm.) daily had no effect on the parasites of any forms of malaria circulating in the peripheral blood. The temperature of the patient remained unaffected and rigors and paroxysms continued.

Action of Opium in Diabetes.—By the administration of small doses of opium, from 1 to 6 grains (0.065 to 0.4 Gm.) daily, Chopra and Bose effected a slight reduction in the total quantity of urine excreted in mild cases of diabetes. In severe cases it did not reduce polyuria, thirst or frequency of micturition. In the early and mild cases of diabetes, opium had a well marked effect in reducing the total daily output of sugar in the urine. In some cases the sugar entirely disappeared from the urine under its influence. In severe cases of diabetes, however, it had no effect on the sugar output. Opium had not much effect in reducing the amount of blood sugar of diabetic patients; in fact, in severe forms of the disease it actually increased it. In some patients the administration of opium distinctly raised the renal threshold for excretion of sugar. The sugar in the urine disappeared while that in the blood was increased. It would not, therefore, be advisable to use opium in this disease.

Pharmacologic Action and Therapeutic Uses of Narcotine.—Experimental evidence is produced by Chopra et al. in support of the view that narcotine, unlike morphine, stimulated the respiratory center in the medulla. The plain muscles of the bronchioles are relaxed. The drug, in animals at any rate, has a stronger action on the cord than on the brain. Narcotine has a depressant action on the algesic areas in the brain and therefore lessens such symptoms as headache, pain in the limbs, and discomfort, attendant on febrile conditions. It undoubtedly potentiates the action of morphine and codeine so that much smaller quantities of these alkaloids would be effective if given in combination with narcotine. The voluntary muscles are not affected. It is stated that the alkaloid could be employed in medicine for its synergistic effects on the sedative properties of morphine, codeine and diacetylmorphine. By iself it is beneficial in allaying cough, headache and other minor conditions producing pain of a milder type. On account of its depressant action on the involuntary muscle tissue it would be useful in such conditions as asthma, whooping cough, and spasm of muscular tubes such as the intestine, bile duct and urethra.

Pathology of Chronic Colitis in Tropics.—The different types of dysenteric lesions are described by Menon from a study of material and records from 800 necropsies. He asserts that about 60 per cent of fatal cases of "chronic" colitis or "chronic diarrhea" of indefinite origin show morphologically strong resemblance to the lesions of chronic dysentery. Some cases show an atrophied state of all the coats of the large and small intestine, the exact cause of which has not been determined.

Rôle of Urinary Colloids in Prevention of Stone Formation.—Against the arguments for the theory that the urinary colloids are the mechanism by which certain difficultly soluble constituents of the urine are prevented from precipitating, the experiments made by Newcomb have shown that other colloids (starch, gelatin, serum, albumin and milk) have no effect on the solubility of such constituents (uric acid, oxalates and phosphates) in an artificial mixture of salts resembling urine. On the dialysis of normal urine the uric acid distributed itself evenly on both sides of the dialysis membrane. This shows that the uric acid is not firmly attached to the colloids. If normal urine was dialyzed and the dialysate evaporated to the concentration of the original urine, no precipitation occurred *if the acidity was kept at, or restored to, its original value.* A clear solution of all the crystalloids (including the uric acid, oxalates and phosphates) in their original concentrations could be obtained in the absence of colloids, so long as the acidity was kept the same. Newcomb feels that, while normal urine undoubtedly contains colloids, it is doubtful whether these have any considerable influence on the precipitation of such constituents as ordinarily go to form urinary calculi.

Pernicious Anemia of Pregnancy.—It is suggested by Wills and Talpade that a relative deficiency in vitamins A and C or some factor associated with this deficiency is concerned in the etiology of "pernicious anemia of pregnancy," and that the proportion of fat and vitamin B in the diet may play some part in determining the incidence of this disease in a population generally short of vitamins A and C.

Annales des Maladies Vénériennes, Paris

25: 481-560 (July) 1930

*Paratherapeutic Icterus: Diagnostic Value of Cholesteremia Level. M. Vauthey.—p. 481.
*Familial Hypotrichosis Due to Endocrine Disturbances Caused by Congenital Syphilis. H. Behdjet.—p. 493.

Paratherapeutic Icterus: Diagnostic Value of Cholesteremia Level.—In the pathogenesis of paratherapeutic jaundice the state of tolerance or of intolerance of the liver and its susceptibility play an important rôle, which should not be overlooked in the general tendency to ascribe to the disease a toxic or a syphilitic origin. Insisting on the importance of a prior hepatic terrain, Vauthey names three factors concerned in the development of jaundice following antisyphilitic chemotherapy: ordinary hepatic presensitization (through alcoholism, gallstones, malaria or tuberculosis); a specific hepatic presensitization due to spirochetes or their toxins, and the action of chemical medicaments. The author then distinguishes two types of paratherapeutic jaundice: (1) cases of syphilomedicinal origin and (2) those of a purely medicinal source. Diagnosis should be based on three criteria considered simultaneously. These are the hepatic antecedents, the intensity of the syphilitic manifestations, and the cholesteremia level. If this level is below normal in the course of paratherapeutic jaundice at the end of the first or in the second period, associated with syphilitic manifestations but without commonplace hepatic antecedents, the jaundice is probably of syphilitic—that is, syphilomedicinal origin. If the level is above normal in the same conditions of evolution of syphilitic infection, but in the absence of manifestations of syphilitic activity, and with evidence of hepatic presensitization, a purely medicinal icterus may be diagnosed. The treatment for the latter form calls for absolute suppression of the medicine linked with the appearance of the disease. Arsenic compounds should be replaced by bismuth salts or mercuric cyanide.

Familial Hypotrichosis Due to Endocrine Disturbances Caused by Congenital Syphilis.—Behdjet reports two cases of this disorder occurring in three generations and among members of one family, and in two generations in the second family. In addition to alterations in the internal secretion glands there existed also other symptoms of congenital syphilis.

Archives des Maladies de l'App. Digestif, etc., Paris

20: 641-760 (June) 1930

*Gastric Pain in Functional Dyspepsias. P. Oury, P. Godard and V. Nichita.—p. 641.
*Syphilitic Celialgia. J. Turriès.—p. 660.
Tetanus in Amebic Dysentery: Case. C. Farmakidis.—p. 669.

Gastric Pain in Functional Dyspepsias.—A comparison between the clinical, roentgenoscopic and chemical examinations of patients with stomach pains and disorders was made by Oury et al. to determine in what measure gastric pain corresponds with variations in the form and chemistry of the stomach. About sixty patients whose troubles could be diagnosed as functional dyspepsia were divided into four groups: (1) hypochlorhydria with normal or exaggerated tonicity; (2) hyperchlorhydria with hypotonia and feeble or no kinesia; (3) anachlorhydria or hypochlorhydria with orthotony, or normal or exaggerated kinesia; (4) simple hypokinetic ptosis with subnormal chlorhydria. The results of their study showed that the division of gastric pains into burning, cramps, twitching, heaviness and so on did not correspond to any precise clinical type. Often the classic types of hypersthenia and hyposthenia did not correspond to anything definite. Phenomena of antiperistalsis as well as alkaline regurgitation from the duodenum played an important part in the establishment of the chemical composition of the gastric sugars examined, and in various dynamic and static disorders. Contrary to expectations, the largest group was not found to answer the definition in group 4, from which the authors concluded that patients with simple ptosis suffer from this disorder only when the ptosis is complicated by secondary disturbances. Finally, the largest number of patients with gastric pains was found to be those with hyperchlorhydria.

Syphilitic Celialgia.—The syphilitic origin of attacks of severe pain in the epigastric region is the subject of the investigations of Turriès. In such cases, the symptoms are cramps, sensations of twisting, burning or of heaviness, often localized in the epigastric region and in general, without notable irradiation except toward the vertebral region. The pain element is not constant but has an alternating or undulating rather than a periodic evolution. Vomiting, hematemesis or nausea is not observed. Salivation is sometimes noted, also slight constipation. The most constant symptom is pain revealed on even slight pressure over the solar plexus. The general condition of the patient is satisfactory; a slight asthenia with irritability, and sometimes insomnia are also symptomatic. Although such cases have usually been variously diagnosed, the author finds that a complete detailed study will reveal in addition to the painful epigastric syndrome two others; namely, manifestations of (1) syphilitic infection, and (2) sympathetic dystonia. In the latter instance, the most common signs of vagosympathetic disequilibrium to be found are vasomotor (emotional and postprandial) disturbances and cenesthesic disorders. As to the syphilitic element, it is rarely great. Spirochetal infection, often latent or disguised, is revealed by various signs, such as anisocoria, inexplicable, long standing refractory encephalitis, and modified reflexes. To prove that the disorders were of the etiology suspected, the author applied therapeutic tests. All digestive as well as the customary sedative treatments failed, while in all the cases considered in this present study only spirocheticidal treatment gave certain and lasting results.

Archives Méd.-Chir. de l'App. Respiratoire, Paris

5: 93-194, 1930

*New Method of Auscultation. F. Parodi.—p. 93.
Roentgen Changes Simulating Hemithoracic Stricture with Superelevation of Hemidiaphragm Due to Pulmonary Sclerosis and in Reality Due to Pulmonary Atelectasis and Paralysis of Phrenic Nerve. E. Sergent and J. Vibert.—p. 116.
Syphilitic Pulmonary Granuloma. J. Dechaume.—p. 127.
Hemoptysis and Meteorological Conditions. J. Chaize.—p. 155.

New Method of Auscultation.—In an analysis of the physical and physiopathologic principles of the most important signs in thoracic auscultation, Parodi notes that vesicular respiration and bronchial respiration are physical entities separated by their origin and their acoustic character. The bronchial bruit is determined by the vibration of air on the vocal cords and in the bronchial tubes, and vesicular respiration by the vibrations of the pulmonary parenchyma during respiratory distention. The height and intensity of the sound perceived on the periphery are relative to the homogeneity and density of the interposed parenchyma. The more dense and thick the tissue that unites the bronchial tubes to the thoracic wall, the higher and louder is the sound. Râles are always formed in the area of greatest stricture in the bronchial tubes. Their tonality is determined by particular pathologic conditions that provoke an increase in the speed of the current of air in the tubes. The tonality is relative to the conditions of the surrounding parenchyma. Each time the sound extends beyond its center of origin, an anatomic alteration of the bronchial or vesicular system is to be inferred. Hence any variation in the depth of physiologic respiration indicates a pathologic alteration. The difficulty in auscultation lies in the distinction of the high or pathologic sounds from the low or physiologic sounds. In order to distinguish these two, to eliminate the low sounds, and to bring in the high sounds perceived on the periphery of the thorax, the author has devised an instrument, which he terms a "phonoselectoscope," constructed according to the principles of modern acoustics. Not only does the use of such an instrument as the one described by the author facilitate the distinction between pathologic and physiologic signs, thus rendering an easier, earlier and more exact diagnosis of pulmonary diseases, but it also furthers a deeper study of problems in pulmonary and cardiac auscultation. Moreover, it facilitates the teaching of auscultation technic, by means of a scientific method, and permits provision for the nomenclature of pulmonary symptomatology as well as the possibility of simplifying it by correcting faults that are at present regarded as classic notions.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

(54): 977-1010 (June 16) 1930

*Facial Paralysis in Chronic Nephritis. M. Vinard and P. Puech.—p. 977.
Experiments on Alimentary Anaphylaxis in Animals. P. Vallery-Radot.—p. 980.
Vascular Fragility with Virilism. Laignel-Lavastine, M. Hirsch and M. A. Miget.—p. 982.
*Pernicious Anemia Treated with Preparations of Desiccated Stomach. P. Lambin and J. Steenhoudt.—p. 986.
*Distribution of Chlorine in Blood as Therapeutic Indication. L. Ribadeau-Dumas, R. Mathieu, M. M. Lévy and J. Fleury.—p. 991.
Association of Asthma and Syphilis. H. Dufour.—p. 1002.

Chronic Nephritis and Facial Paralysis.—Vinard and Puech report a case of chronic, hypertensive albuminous nephritis with edema and azotemia, and hemorrhage in the petrous canal of the facial nerve, causing facial paralysis. The patient's clinical history revealed a tendency to hemorrhages. Lesions of the kidneys and liver predisposed the patient to such conditions. It is the opinion of the authors that facial paralysis in chronic nephritis is caused not by a primary or a superadded infection but by a local hemorrhage due to vascular rupture analogous to that frequently seen at the level of the nasal fossae, the retina or the brain.

Pernicious Anemia Treated with Preparations of Desiccated Stomach.—Relative to the treatment of pernicious anemia, Lambin and Steenhoudt describe preliminary experiments made with a powdered mucous membrane of hog stomach, and another powder of the dried muscular tissue of the stomach. From their observations they conclude that (1) administered on a meatless diet, the dried gastric mucosa showed only a relatively small activity; (2) ingested together with 200 Gm. of beefsteak, the same quantity of the mucosa powder produced results approximately three times as great; (3) the powdered muscular tissue did not assure continuation of the abatement of the symptoms of the disease.

Blood Chlorine and Its Distribution in Plasma and Erythrocytes: Therapeutic Indications.—The choice of a serum may become problematic when a selection is urgent in order to check a nursling's rapid loss of weight, owing to various causes. Blood examination will give the necessary indications through the determination of the chlorine content in the erythrocytes and the plasma. From this, Ribadeau-Dumas et al. deduce two facts that bear on the application of their special therapy: (1) the absolute value of the amount of the blood chlorine; (2) the distribution of chlorine in the plasma and erythrocytes expressed by a ratio of about 0.48. In cases in which the ratio is found to be above normal, the authors advise ingestion or injection of bicarbonated serum; in some cases a complementary serum is necessary, such as a serum treated with dextrose with or without insulin, or Ringer's solution. If the ratio is not modified but the absolute chlorine value is, an injection of serum treated with dextrose or insulin is required instead of a salt serum, since it is necessary to rehydrate the organism without effecting a new ionic surcharge. If the ratio is lowered, Ringer's solution should be injected. Guided by hematologic examinations, the authors have had excellent results from the use of this serum treatment.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

56: 735-784 (June 14) 1930

Coxalgia: Extra-Articular Arthrodesis. Vergoz.—p. 736.
*Volvulus of Intra-Articular Pedicled Lipoma of Knee. L. Diamant-Berger.—p. 744.
*Total Volvulus of Small Intestine. Matry.—p. 746.
*Perforation of Gallbladder in Severe Typhoid. Fevre, Folliasson and Liège.—p. 750.
Perforated Ulcers of Meckel's Diverticulum: Cases. M. Fèvre, Patel and Lepart.—p. 756.
Reconstruction of Abdominal Wall in Inguinal Hernia: Point in Technic. M. Chaton.—p. 767.
Anterior Dislocation of Head of Fibula and Interstitial Emphysema of Calf of Leg in Open Fracture of Lower Third of Tibia. Botreau-Roussel and P. Huard.—p. 769.
Postoperative Cicatricial Stenosis of BBiliary Tract Following Retrograde Cholecystectomy: Case. B. Desplas, G. Durand and J. Meillère.—p. 773.
Gallstones and Chronic Pancreatitis: Case. B. Desplas, J. Dalsace and J. Meillère.—p. 776.
Traumatic Lesion of Radius: Case. A. Mouchet.—p. 782.

Volvulus of Intra-Articular Pedicled Lipoma of Knee: Case.—Diamant-Berger reports a case of the twisting of a pedicled intra-articular lipoma of the knee. The tumor was of traumatic origin. Prior to resection there had been severe pains and functional disturbances which in some measure simulated true articular blockage, yet no torsion of the pedicle had ever been indicated.

Total Volvulus of Small Intestine: Two Cases.—In two cases of total volvulus of the small intestine, the presence of lesions was indicated by an acute occlusion syndrome. Matry describes the symptoms, the diagnosis and the treatment by means of laparotomy and detorsion.

Perforation of Gallbladder in Severe Typhoid.—On the nineteenth day after the development of typhoid, a perforation of the gallbladder occurred in a patient, aged 11. Fèvre et al. advocate cholecystostomy under local anesthesia as the safest course in such circumstances.

56: 785-816 (June 21) 1930

Large Right Scrotal Hernia: Hemicolectomy and Recovery. R. C. Monod.—p. 786.
*Duodenal Fistula Following Suture of Perforated Ulcer: Duodenectomy and Recovery. P. Moulonguet.—p. 792.
Apparatus for Projecting Roentgenograms Without Reduction in Size. Lepennetier.—p. 799.
*Torsion of an Appendix Epiploica of Left Colon. J. Braine.—p. 801.
Recurrence of Papilloma of Bladder. P. Bazy.—p. 806.
Phenyl Salicylate as Urinary Antiseptic. P. Bazy.—p. 814.

Duodenal Fistula Following Suture of Perforated Ulcer.—The treatment in this case of perforated ulcer of the duodenum consisted of suture of the perforation, gastro-enterostomy, and drainage of the perforation locale. But shortly afterward there appeared a fistula that was refractory to treatment. A second operation revealed at the seat of the fistula an extensive induration and marked stenosis of the duodenum. Moulonguet resected the whole anterior wall of the first portion of the duodenum, sutured the breach and reestablished the continuity and permeability of the duodenum.

Torsion of an Appendix Epiploica of Left Colon.—Such a torsion abruptly blocks the colon and brings about a decided reflex colic distention throughout, inhibiting peristalsis. In this case there were severe localized pains, with a temperature of 102.2 F. and an absence of abdominal rigidity. After administering a spinal anesthetic, Braine made an incision that revealed a violet-red appendix epiploica of the colon as large as a chestnut, twisted back on itself and attached to the colon only by a filiform pedicle twisted and on the point of becoming detached. The pedicle was sectioned and a drain inserted in the rectovesical pouch.

Presse Médicale, Paris

38: 841-856 (June 21) 1930

Persistence and Value of Antitoxic Immunity in Persons Vaccinated with Diphtheria Anatoxin. G. Ramon, R. Debré, M. and G. Mozer and G. Pichot.—p. 841.
*Albumins and Albumin Quotient of Serum in Pulmonary Tuberculosis. A. Dufourt, Robert and Moreau.—p. 843.
*Physiopathologic and Clinical Interpretation of Pirquet's Cutaneous Allergy in Pulmonary Tuberculosis. F. Parodi.—p. 845.

Albumin Quotient of Serum in Pulmonary Tuberculosis.—In their experiments, Dufourt et al. found that the normal albumin quotient in healthy persons varies from 1.6 to 2. They then examined the serum of twenty-four tuberculosis patients, mostly women, of whom the oldest was 46. The ten patients of the first group (only slightly tuberculous) showed practically a normal quotient: from 1.5 to 2.1. The eight patients of the second group (more seriously affected by tuberculosis) showed wholly conflicting results. Four of the third group of six patients considered clinically as incurable showed low quotients: from 0.6 to 1; the other two were normal. It is to be noted that the figures in the results do not always conform to the clinical examinations but in general a high quotient is a good indication, a low one unfavorable.

Interpretation of Pirquet's Cutaneous Allergy in Pulmonary Tuberculosis.—Parodi disagrees with the conception of the word allergy as used by Pirquet. He maintains that allergy is only the relative sensitization of certain nerve tracts and that the cutaneous reactions are neurotrophic reactions of reflex nature and of visceral origin. It is doubtful whether there exists a true hypersensibility of the organism to tuberculous toxins. In any case, Pirquet's allergy is not a humoral reaction nor does it belong among the immunity reactions.

38: 857-872 (June 25) 1930

*Acute Abdominal Syndrome of Physiologic Sections of Spinal Cord. A. Hamant, L. Cornil and M. Mosinger.—p. 857.
Tuberculosis and Internal Oxidations. P. Delore.—p. 861.
Alimentary Anaphylaxis and Peroral Desensitization by Besredka Method. R. Jahiel.—p. 866.

Acute Abdominal Syndrome of Physiologic Sections of Spinal Cord.—Hamant et al. call attention to visceral complications following spinal cord traumatism. Abdominal disorders in particular are noted. The lesions may be a wound, a complete section, or spinal cord concussion. In acute transverse myelitis, abdominal meteorism of sympathetic origin is frequent. Surgical operations on the spinal cord, which often give rise to postoperative pulmonary complications, likewise may result in paralytic ileus. Intestinal occlusion may follow sympathetic lumbar ramisection. Traumatisms of the sympathetic chain are also at times accompanied by paralytic ileus. Under clinical considerations the authors note that the first symptoms appear after a period of latency varying from two hours to two days but other authors have occasionally noted much longer delays. In general the syndrome is announced by meteorism. The functional signs vary and are sometimes lacking. The anal and vesical sphincters may show contracture. The temperature is variable; the pulse is usually more than 100; priapism occurs. Sympathetic extra-abdominal disorders are to be found. The authors distinguish between the benign and the malignant forms of the acute abdominal syndrome, describe the evolution of the two forms, and call attention to their association with pulmonary disorders. Necropsy shows decided congestion of the peritoneum and of the viscera. In general, the posttraumatic abdominal syndrome is characterized by (1) abdominal vasodilatation, varying in importance, which in serious forms is manifested by hematuria, hematemesis, melena, and hepatic congestion, (2) disturbances of intestinal motility, (3) gastric hypersecretion and renal dysfunction. Anatomicoclinical analogies follow between the abdominal syndrome of spinal cord section, of traumatic abdominal and of postoperative abdominal origin. In addition to the frequent occurrence of acute abdominal disorders resulting from traumatism of the spinal cord or acute transverse myelitis, the authors observe that they are characterized by abdominal vasomotor disturbances, by disturbances in the motility of the intestine, and by disorders of the digestive and urinary secretions. As to the pathogenesis, their anatomicopathologic verifications and study of the functioning of the peripheral sympathetic show that traumatic inhibition of the spinal cord centers (by its bringing about a real ramisection), as well as the ramisection operation, does not act as one might think by means of a local hyperparasympathetic effect or by one of purely sympathetic inhibition.

Revue Française de Pédiatrie, Paris

6: 137-264, 1930

Oscillations in Human Temperature. Michalowicz.—p. 137.
*Dietetic Treatment of Diarrhea in Nurslings. L. Moll.—p. 177.
*Antituberculosis Vaccinations by the Calmette Method. Prokopowicz-Wierzbowska.—p. 191.
Status Thymicolymphaticus in Children, Followed by Sudden Death. P. Gautier.—p. 213.
Organizations for Distribution of Mother's Milk. Maretzka.—p. 222.

Dietetic Treatment of Diarrhea in Nurslings.—It is essential to find a diet that, during the diarrhea, will give sufficient liquid with enough salt to permit a retention of water and provide enough calories to prevent inanition. The purpose of this "transition diet" is to arrest loss of weight, after which a diet is given to increase weight again. Moll finds that mother's milk is an excellent reparation diet but that it is not a satisfactory transition diet. For the latter he prefers a preparation of milk of almonds and whey. This is especially suited for younger nurslings. For those somewhat older the author prescribes a pudding made of a special flour with water, sugar, egg, salt and sodium carbonate. This is steamed, strained and diluted with tea, whey, milk of almonds or mother's milk. The almond milk diet is richer in calories and it can be given from four to five days, even for two weeks, without exposing the child to danger from the lack of protein or mineral substances. The average duration of this diet is one week, after which the child's ordinary diet may usually be resumed. The author gives recipes and formulas for his various diet preparations.

Antituberculosis Vaccinations by the Calmette Method.—From her experiments with B C G antituberculosis vaccinations, Prokopowicz-Wierzbowska found that the B C G vaccine had no ill effects on newly born children; also that exogenic agents, such as bad hygienic conditions, defective diet, contagious diseases and digestive or respiratory disorders, exerted no influence capable of increasing the virulence of the B C G stock and did not determine the appearance of tuberculosis in the child. Children thus vaccinated who lived in healthy surroundings did not develop tuberculosis. The vaccinations determined an allergy that was shown by the Pirquet reaction in children living in an atmosphere free from the taint of tuberculosis. Some of the vaccinated children who lived exposed to a contagious form of tuberculosis were infected (positive Pirquet reaction) but did not contract the disease. In rare and exceptional cases in which the children were not isolated after vaccination, early infection did result in severe forms of the disease. The author states finally that it is indispensable to isolate the children who are vaccinated, during the time specified by Calmette.

Clinica Pediatrica, Modena

12: 371-462 (May) 1930

*Behavior of Eosinophils in Tuberculosis in Children. G. Belloni.—p. 371.
*Schilling's Hemogram in Normal Persons and in Persons with Pathologic *Conditions. I. Gazzotti.—p. 397.*
*Incoercible Vomiting in the New-Born: Congenital Atresia of Stomach. G. A. Piana.—p. 431.

Behavior of Eosinophils in Tuberculosis in Children.—Belloni studied the behavior of eosinophils in children with several forms of tuberculosis, before and after the application of antituberculosis treatment. The treatment comprised improvement of the hygienic and nutritional conditions of the children and tuberculinotherapy (both by cutaneous and by hypodermic routes). The author made observations in three groups of children: sixty children who had not received treatment; fifty who had been treated for some time, and twenty-six both before and after receiving treatment. In the last mentioned group, ten children had latent tuberculosis, ten had marked tracheobronchial adenopathy, four had pulmonary tuberculosis, and two had tuberculosis of the bones. The counting of the eosinophils at the second examination was made five months after the treatment had been received, and under the same conditions as it was made the first time. The author considers the results of the first and second groups in relation to those of the third group, before and after the treatment, respectively. The author concludes that in tuberculosis in children (with either a biologic or a clinical diagnosis) there exists a slight eosinophilia, which is related neither to the age or sex of the patient, nor to the localization of the tuberculous lesions. The eosinophilia coincides with an improvement of the patient's general condition in children who had not received treatment. In patients who have already received treatment, the increase of eosinophils is not an indication of the good general condition of the patient but is in relation to a greater positivity of the skin reaction. The several methods of tuberculinotherapy cause in the organism of the children an increase in the eosinophils. However, the behavior of the eosinophils cannot be accepted as having reliable diagnostic or prognostic value in tuberculosis in children.

Schilling's Hemogram in Normal Persons and in Persons with Pathologic Conditions.—Gazzotti studied the behavior of the neutrophil granulocytes in blood pictures made according to Schilling's method, in ten persons (five of them aged more than 70 years) and in forty-three persons with the following diseases: typhus, paratyphoid, undulant fever, influenza, serous peritonitis, pneumonia, exudative pleuritis, grave septicemia, purulent pleuritis, strangulation of the hernial sac, and acute appendicitis. The figures of the blood picture appear in several tables. The author's results in normal persons were similar to those published by Schilling. The dissimilarity observed in the figures given by patients beyond 70 years may be considered as a manifestation of the changed conditions of the functions of the several organic systems in senility. The figures of the blood pictures made by the author in persons with pathologic conditions agree with those published by Schilling. The neutrophils varied with the severity of the disease. The author considers, however, that the method of examination of the blood proposed by Schilling does not have by itself sufficient diagnostic or prognostic value to replace the ordinary clinical and laboratory methods. It may be a useful (though by no means indispensable) coadjuvant method in the diagnosis and prognosis of several pathologic conditions mentioned which the author observed.

Incoercible Vomiting in the New-Born: Congenital Atresia of Stomach. — Piana reports a case of congenital atresia of the stomach in a new-born infant at full term. The infant was born in a condition of general denutrition. He had incoercible vomiting after receiving even the smallest amount of liquids. The vomiting was of a regurgitant type and the liquids were vomited without showing any modification. The child had also constipation. Feeding was impossible. The patient lost weight rapidly, going down from 1,850 Gm. at birth to 1,250 Gm. six days later. A Nélaton catheter could be introduced no farther than the cardia. The introduction of air through the catheter failed to cause any distention in the epigastric region. The infant died on the sixth day. At necropsy it was found that the capacity of the child's stomach was only 4 cc. and that it had rigid and thick walls. The mucous membranes were atrophic. The development of the muscularis mucosae was deficient in regard to normal but excessive with regard to the volume of the organ. The author considers that the atresia of the stomach in this infant had originated during the early intra-uterine life. The presence of lesions of endarteritic proliferation in the stomach, in the pancreas and in the liver found at necropsy, as well as the tendency to the development of sclerosis in some other organs, indicated that the lesion had a vascular origin caused by the influence of a toxic and infectious factor, probably syphilis. (In this case the father was unknown and the Wassermann reaction was not made in the mother or in the infant.) The author says that syphilis may be considered as the causal factor in some cases of incoercible vomiting in infants.

12: 463-554 (June) 1930

Blood Platelets in Children. E. Fanton.—p. 463.
*Bactericidal and Therapeutic Property of Tin Compounds. P. Valentini. —p. 470.
*Total Nitrogen Content of Blood, Urine and Feces in Child, Considered in *Relation to Various Types of Feeding.* A. Simonini.—*p.* 487.
Adiposogenital Dystrophy. I. Soriani.—p. 515.

Bactericidal and Therapeutic Property of Tin Compounds.—Valentini concludes from his experiments that the opportunities to employ preparations of tin are few, owing to the difficult solubility of its compounds. Secondly, preparations of tin have a weak antiseptic potency toward bacteria in general and an especially weak potency toward staphylococci, so that their use in disorders caused by such bacteria appears to the author of doubtful value. The uselessness of preparations of tin in the treatment of tuberculosis (human and bovine) appears evident from this research. As regards the tolerance of the tissues toward injections of preparations of tin in the strengths that he employed, the author thinks it was always rather good.

Nitrogen Content of Blood, Urine and Feces in Child, in Relation to Types of Feeding.—Simonini studied the nitrogen metabolism in children on various kinds of diet. He concludes that the nitrogen content of breast-fed children tends to increase as the child grows older but does not ordinarily exceed a certain physiologic limit. As for the children artificially fed, the author noted an excessive increase in the nitrogen content. *Such increase explains* why in those children intoxications, dyspepsia and gastro-enteritis due to proteins develop so easily. In children of the third group who have completed the first year of life, the mixed diet is well adapted to their existence, because the nitrogen content is approximately that of breast-fed children.

Riforma Medica, Naples

46: 833-871 (June 2) 1930

Hemopathy and Roentgen Rays. A. Ferrata.—p. 835.
*Rare Syndromes of Intestinal Parasitosis. G. Ranieri.—p. 839.
Psychic Variations in Persons Suffering Injuries of Cranium and Spinal Column. F. Allodi.—p. 840.

Rare Syndromes of Intestinal Parasitosis. — Ranieri describes a case of spastic intestinal pseudo-occlusion due to helminthiasis (ascarids and oxyurids). The patient, a boy aged 15, had been admitted to the hospital with a diagnosis of intestinal occlusion, and an emergency operation was contemplated. The patient presented all the symptoms of an acute abdominal syndrome, but some signs (absence of profound asthenia and of cardiac adynamia; subfebrile temperature, vomiting becoming less frequent) pointed to pseudo-occlusion. A number of enemas evacuated old feces with many ova of *Ascaris lumbricoides, Oxyuris vermicularis* and *Trichocephalus dispar.* A purge cathartic eliminated a few ascarids. Recovery followed.

Semana Médica, Buenos Aires

37: 1405-1468 (June 5) 1930. Partial Index

*Ethylhydrocupreine Hydrochloride in Treatment of Purulent Pleurisy in Infants. M. Acuña, S. I. Bettinotti and M. T. Vallino.—p. 1409.
Auriculoventricular Dissociation with Ventricular Block. T. Padilla and P. Cossio, Jr.—p. 1412.
*New Reaction of Choline and Lecithin. J. A. Sánchez.—p. 1416.
Motor Changes, Hemorrhagic Endotheliosis, Splenomegaly and Petechial Purpura as Complications of Endocarditis Lenta. R. Dassen.—p. 1416.
Surgical Treatment of Incontinence of Urine. R. Schwarcz.—p. 1419.
Hemorrhagic Endometropathy of Ovarian Genesis. O. Prestini.—p. 1425.
*Rare Accident in Swallowing Capsules of Tetiothalein Sodium. C. Heuser.—p. 1448.
Necessity of Health Centers for Malariotherapy. F. Gorriti.—p. 1449.
Medical and Mechanical Production of Thrombo-Arteritis During Treatment of Syphilis. T. Areta.—p. 1451.

Ethylhydrocupreine Hydrochloride in Treatment of Pleurisy in Infants.—Acuña et al. treated four infants, aged from 10 to 30 months, who had purulent pleurisy, by means of evacuant tappings, followed by lavage of the pleural cavity with a 5 per cent solution of ethylhydrocupreine hydrochloride, and intrapleural injections of either a 2 per cent or a 5 per cent solution of the same drug. It is claimed that the drug has an elective antiseptic action on the streptococcus in vitro. With the tappings, quantities of pus, laden with pneumococci (only in one of the cases was it laden with streptococci) were removed. In two cases complete recovery was not obtained with the treatment alone, though the patients' general condition improved. In the two cases the performance of a pleurotomy with costal resection was necessary after some tappings. The other two infants obtained complete recovery only from the evacuant ethylhydrocupreine treatment. In the last mentioned two infants the end of the pleural process was characterized by the transformation of the scanty remaining intrapleural fluid, into a sterile, hemorrhagic and gelatinous exudate. In pleurisy in early infancy (which the authors consider a serious condition) the treatment gives a high percentage of complete recoveries. It is also of value in the cases of pleurisy in which an operation is contemplated. It improves the general condition of the patients, thus permitting one to defer the operation till its dangers are minimal.

New Reaction of Choline and Lecithin. — Sánchez explains the mechanism of a new reaction of choline which may be applied to its most important derivatives. The primary reaction consists in the transformation of the molecule of the nucleus of the choline into iodoform, by means of two reactives, iodine-iodide and sodium hydroxide. To apply the same reaction to lecithin, the following method is used: Ten cubic centimeters of a 5 per cent solution of sodium hydroxide and 0.1 Gm. of lecithin is boiled for five minutes. It is then cooled and a 0.5 per cent solution of sulphuric acid is added drop by drop till a complete acid reaction is obtained. This solution is filtered through a wet filter in order that the fatty acids may be separated. The filtrate contains choline, phosphoric acid and glycerin. With 1 cc. of this filtrate, Lieben's test or the iodoform test may be performed.

Accident in Swallowing Capsules of Tetiothalein Sodium.—Heuser's patient, aged 60, after having expelled some gallstones was told to swallow some capsules of tetiothalein sodium for roentgen examination of the gallbladder. When the capsules were swallowed, one of them was deviated. The patient complained for several days of ardor of the throat and difficulty in speaking. The laryngologist believed that the capsule had lodged in the trachea instead of passing into the esophagus. An examination of the larynx showed edema of the vocal cords but failed to show the presence of the foreign body. Roentgen examination showed a shadow from the fourth cervical vertebra to the insertion of the first rib, and then as far as the diaphragm. This shadow was observed behind the trachea, which outline was clearly manifested in front of the dark shadow. The patient recovered after several days. Roentgenography in this case had a double value, both from the point of view of the interpretation of the roentgenogram, and from the clinical point of view of the diagnosis.

Deutsche Zeitschrift für Chirurgie, Leipzig

224: 353-425 (July) 1930

Pyelovenous Reflux and Hydronephrosis. F. Fuchs.—p. 353.
*Treatment of Tuberculosis of Epididymis: End-Results. F. Felsenreich.—p. 383.
*Isolated Actinomycosis of Kidney Secondary to Empyema of Sphenoid Sinus. H. Recht.—p. 414.
*Primary Sarcoma of Seminal Vesicles with Multiple Brain Metastases and Two Cases of Carcinoma of Seminal Vesicles. H. Junghanns.—p. 418.
Primary Calculus Formation in Posttraumatic Pseudodiverticulum of Urethra. G. Eckhardt.—p. 421.

Treatment of Tuberculosis of Epididymis.—Out of 235 cases treated, Felsenreich is able to report the final results in 147. These cases were treated by operation, irradiation and injection. First of all, it is apparent that recurrences depend more on the presence and severity of a pulmonary tuberculosis rather than tuberculosis of the urogenital system. The same is true of the final results. Furthermore, all three methods of treatment yield equally good results; therefore, operation, at least semicastration, is not justified since conservative treatment yields as good results and does not expose the patient to the dangers entailed by operation. Ten of the sixteen deaths in this series occurred in cases in which only the lungs were involved; in six cases, pulmonary and urogenital tuberculosis was present. In not one case of pure urogenital tuberculosis did death occur. Good general treatment, with conservative preoperative and conservative operative treatment, is the best course of procedure. Radical operation should be reserved for patients of advanced years.

Actinomycosis of Kidney.—Recht reports a case in which the necropsy revealed suppurative nephritis in both kidneys, evidently secondary to an empyema of the sphenoid cells, and foci of actinomycosis in which gram-negative actinomyces were found. No other focus of actinomycosis was found elsewhere in the body. Therefore he concludes that this was a case of primary, isolated actinomycosis of the kidney.

Sarcoma of Seminal Vesicles with Multiple Metastases.—Junghanns relates the case of a man, aged 48, who came to operation with a diagnosis of tumor of the brain. Six hours after a subtemporal decompression, he died. The necropsy cleared the diagnosis. The brain was the seat of many sarcomatous metastases; one was found in the cardiac auricle. The primary tumor was situated in the left seminal vesicle. Microscopic examination disclosed that it was a giant cell alveolar sarcoma, the second now on record. All the symptoms in this case pointed to the brain; none to the pelvis. Junghanns also reports two cases of carcinoma of the seminal vesicle discovered at necropsy. Of 18,951 sections done in the years between 1893 and 1927, carcinoma was found in 2,012. Two of these were the cases of carcinoma of the seminal vesicle. In both cases the left gland was involved. One patient was aged 75; the other, 64. This brings the total of recorded cases of sarcoma to two and of carcinoma to twelve.

Klinische Wochenschrift, Berlin

9: 1289-1336 (July 12) 1930

Calmette's Vaccination Against Tuberculosis. O. Kirchner.—p. 1289.
Significance of Duration of Anesthesia and of Difference Between Anesthetic and Lethal Doses for Choice of Basic Anesthetic. L. Lendle and H. Tunger.—p. 1293.
Affective Circulatory Changes with Especial Consideration of Size of Heart. H. Cramer and E. Wittkower.—p. 1296.
Theory of Mechanism of Uniovulation: Action of Hormone Regulating Menstrual Cycle. G. Dahlberg.—p. 1298.
Test of Mechanical Capillary Resistance of Skin in Hemorrhagic Diathesis. O. Mengler.—p. 1301.
Xanthomatosis of Dura Mater and of Bones of Skull. K. Höfer.—p. 1302.
*Threshold Value of Blood Sugar in Nephroses. B. Fell.—p. 1306.
Familial Nosebleed as Sign of Pseudohemophilia. F. P. Weber.—p. 1308.
Ulcers of Leg in Hemolytic Icterus. M. Gänsslen.—p. 1308.

Threshold Value of Blood Sugar in Nephroses.—Fell tested the threshold value of the blood sugar in seven patients with various forms of nephrosis. After the sugar content of the blood had been determined, the patients were given an intravenous injection of a 30 per cent solution of dextrose. After that the sugar content of the urine and of the blood was ascertained. Tabular reports indicate that in patients with nephrosis the threshold value of the blood sugar is considerably higher than in normal persons. The author plans further investigations to determine the underlying causes (whether humoral, incretory or nervous) of the changes in the threshold value of the blood sugar of patients with nephrosis. He states that there are no indications for disorders in the intermediate carbohydrate metabolism. At least, a retardation in the depression of the blood sugar content was not observed.

Medizinische Klinik, Berlin

26: 953-990 (June 27) 1930

Theoretical Foundations of Vaccination Against Tuberculosis. B. Lange.—p. 953.
Diseases of Eyes Caused by Hydrogen Sulphide. P. A. Jaensch.—p. 955.
Parturition During Twilight Sleep Induced by Solution of Secondary Butylbrompropenylbarbituric Acid. W. Schmidt.—p. 956.
Disinfection of Small Quantities of Drinking Water by Means of Chlorine. F. Hoder.—p. 959.
Toxicology of Edible Turban-Top (Helvella Esculenta). J. Manger.—p. 960.
Criticism of Methods for Prevention of Conception. A. W. Bauer.—p. 961.
*Tophaceous Gout. B. Lewy.—p. 964.
*Splenomegaly and Thrombosis of Splenic Vein. H. A. Epstein.—p. 966.
*Relapse of Measles. H. Liebig.—p. 968.
Hyperplasia of Tonsils. Feuerstein.—p. 969.
Fixation of Complement in Gonorrhea. G. Hopf.—p. 970.

Tophaceous Gout.—Lewy reports the case of a woman, aged 53. She asked medical aid on account of severe gastric disturbances. The examination revealed numerous peculiar growths on the arms and on the hands. The growths had developed during the last five years and were hard but not painful. The patient related that occasionally nodules opened and discharged a whitish mass. The subsequent ulceration that developed always healed quickly. The author thought of true gout and this diagnosis became more probable when an examination of the blood during a purine-free diet revealed a high uric acid content. However, when the contents of a nodule were examined the expected uric acid needles could not be detected and only an amorphous mass containing calcium carbonate and calcium phosphate was found. The case was now diagnosed as tophaceous gout. Roentgen examination revealed the chalky deposits as shadows. This was an additional proof for tophaceous gout because the urate deposits in ordinary gout are not visible in the roentgenogram. Roentgen diagnosis is therefore a valuable aid in differentiating between ordinary gout and the tophaceous form. The fact that the patient had an inoperable cancer of the stomach made frequent tests of the mineral metabolism difficult. However, it was found that the calcium content of the blood was considerably increased. Following the review of several cases of tophaceous gout from the literature the author assumes that tophaceous gout is perhaps not primarily a disorder of the mineral metabolism but is rather a chronic disease of the skin. The patient died as the result of the cancer of the stomach. Excision of the chalky nodules revealed that they were only in the subcutaneous connective tissue and that the underlying musculature was free from them. The author also describes the results of the microscopic examinations.

Relation Between Splenomegaly and Thrombosis of Splenic Vein.—A review of the literature and observations in two cases convinced Epstein that the diagnosis of thrombosis of the splenic vein is extremely difficult. To differentiate this condition from cirrhosis of liver and from Banti's disease usually requires a laparotomy, or it is correctly diagnosed only during the necropsy. However, a thrombosis of the splenic vein should be thought of in all cases of severe splenomegaly with hematemesis, digestive disorders, slight ascites, anemia and leukopenia. Thrombosis of the splenic vein is probable whenever the anamnesis or the clinical aspects do not give indications for cirrhosis of the liver. The thrombosis of the splenic vein is the secondary condition.

Relapse of Measles.—Liebig points out that an attack of measles generally results in immunity against further attacks. However, that there are exceptions to this rule has long been recognized. Some authors differentiate between a second attack of measles that is caused by a new infection and a relapse. The case observed by the author is significant for the problem of relapse of measles respectively for a second infection with measles, because the child was under clinical observation during the course of both attacks and a new infection during convalescence through another patient was not possible. The second exanthem appeared thirty days after the first one. The possibility that the child had German measles rather than measles was disproved by careful observations and the author is convinced that the child had a relapse of measles. Concerning the causes of such a relapse, nothing definite is known as yet. However, the author assumes that some patients have lost the capacity to develop antibodies against the virus of measles or possess it only temporarily. The cause of this abnormality in the immunity processes is not known, but, if the fever is an indicator of the resistance power of the organism against an infection, the absence of fever in the child and the long duration of the first exanthem indicate that it was not capable of forming antibodies.

Münchener medizinische Wochenschrift, Munich

77: 1089-1128 (June 27) 1930. Partial Index

Water Metabolism in Skin Diseases. J K. Mayr.—p. 1089.
*Superiority of Broadly Built Persons Over Slender Types. E. Schlesinger.—p. 1090.
Complement Fixation in Gonorrhea. F. Hoder.—p. 1093.
*Prophylaxis of Thrombosis and Embolism During Puerperium. M. Wachtel.—p. 1094.
*Cure of Myeloblastic Leukemia. W. Gloor.—p. 1096.
Pulmonary Embolism Following Contusion of Leg and Early Massage. W. K. Fränkel.—p. 1098.
Feer's Disease: Case. G. Hille.—p 1098.
Hormone of Anterior Lobe of Hypophysis: Effect on Premature Infants. E. Schulze.—p. 1100.
Tribomethanol in Treatment of Severe Chorea. K. Westphal —p. 1104.

Superiority of Broadly Built Persons Over Slender Types.—Schlesinger reports the results of investigations on the constitutional types of more than 2,000 children and young persons aged between 9 and 18 years. He discusses the method that was employed for the classification, the results of dynamometry and of spirometry, the developmental conditions, the anthropometric values and the constitutional anomalies. In the last part of the article he gives a tabular report, and on the basis of his investigations he comes to the conclusion that among the slender types the predisposition to constitutional anomalies, such as neuropathic conditions, sequelae of exudative diathesis, and muscular weakness that becomes manifest in postural abnormalities is much more frequent than among the broadly built children. However, what is still more important, the latter also show a physical superiority. The dynamometer registered their greater muscular power and tests with the spirometer indicated their greater vital capacity. It could also be demonstrated that in the broadly built types the circumference of the chest and the weight were greater in proportion to the body height than in the slender types, and underdevelopment and undernourishment were less frequent among the broadly built than among the slender. The author points out that from these observations on children and young persons it cannot be inferred with certainty that among adults the conditions are the same. But in spite of this, the investigations have proved that, for children and young persons, the broadly built type is the more desirable.

Prophylaxis of Thrombosis and Embolism During Puerperium.—Wachtel reviews various theories regarding the etiology of thrombosis and embolism, as well as the diagnosis and treatment of these conditions. In discussing the prophylaxis he stresses a nourishing and sensible diet and the regulation of defecation and of urination. During operations strictest asepsis, correct posture and the arrest of hemorrhage are essential. In cases of varicose veins, rubber stockings or bandages should be worn and prolonged standing should be avoided. Obliteration treatment of varicose veins is advisable even during pregnancy. The author recommends injections of a 10 or 15 per cent solution of dextrose. The treatment of varicose veins of the vulva is especially advisable during pregnancy. Women in whom thromboses have developed during former pregnancies should receive daily 3 drops of tincture of strophanthus, beginning several weeks before the confinement. *After delivery, medication with digitalis is advisable.* Some authors recommend blood transfusions. The author saw good results from dextrose infusions, particularly in anemic women after obstetric or gynecologic operations. As the most important factor in the prophylaxis of thrombosis and embolism during the puerperium, the author considers Walthard's method of gymnastics. The exercises should begin on the first day after parturition. The author describes the breathing and physical exercises for each day. Contraindications to the gymnastics are an existing thrombophlebitis, febrile conditions, great loss of blood, anemia and a serious operation. However, forceps operations and cesarean section are not contraindications. But if it is not possible to begin the exercises on the first day they should not be instituted later. In one instance of a cesarean operation the exercises were begun on the sixth day and the patient developed a pulmonary embolism and died. However, with the exception of this fatality, the results of the exercises were favorable. Among 100 puerperas, in whom the gymnastics had been omitted, there developed six cases of thrombophlebitis, whereas among several hundred others who had taken the exercises there was not a single case of thrombosis.

Cure of Myeloblastic Leukemia.—Gloor describes the clinical history of a patient with myeloblastic leukemia who came under his observation in 1927. Several examinations in the last two and one-half years prove that this cure is a permanent one. The case is of especial interest because the prognosis in cases of myeloblastic leukemia is generally unfavorable. In some instances temporary improvements are noted, but permanent cures are extremely rare and most cases have a fatal outcome after several months. The diagnosis myeloblastic leukemia was correct in this case. The therapeutic success cannot be ascribed to the one or to the other form of treatment but rather to the combination of the different treatments. The patient was given intensive arsenic treatment, received several roentgen irradiations, and intravenous treatment with mesothorium. These therapeutic measures effected a temporary reduction in the leukocytes but after that they increased again. Then a blood transfusion was made and this in turn was followed by roentgen treatment and then by another blood transfusion. After that normal blood formation set in. The same therapeutic procedures were later employed in other cases of myeloblastic leukemia but the improvement was either temporary or entirely absent.

Wiener klinische Wochenschrift, Vienna

43: 833-864 (July 3) 1930

*Demonstration and Treatment of Diseases of Peripheral Arteries. M. Sgalitzer, R. Demel, V. Kollert and H. Ranzenhofer.—p. 833.
Accidents Caused by Automobiles and Motorcycles. W. M. Kremer.—p. 837.
Transitory Shadows in Pulmonary Hilus of Children with Negative Tuberculin Reaction. K. Dietl.—p. 840.
Inconstancy of Electrocardiographic Signs (Scherf) in Pericardial Effusion. G. Agostoni and C. Papp.—p. 842.
Significance of Hypophyseal Preparations in Treatment of Diabetes Insipidus. Z. Benkovics and J. von Fernbach.—p. 844.
Problems of General Practitioner in Preoperative and Postoperative Care of Patients. F. Kazda —p 845.

Demonstration and Treatment of Diseases of Peripheral Arteries.—Roentgen examination of the arterial system of the extremities was performed by Sgalitzer et al. in twenty cases. An iodine preparation was used as contrast medium. The authors come to the conclusion that the method has diagnostic significance since it reveals obstructions or stenoses that are caused by arteriosclerosis, endarteritis or spasms, and it localizes an embolus or thrombus. In several instances, namely, in intermittent claudication and in beginning gangrene of the toes, temporary therapeutic effects were noted.

Zentralblatt für Gynäkologie, Leipzig

54: 1729-1792 (July 12) 1930

Action of Hormone of Anterior Lobe of Hypophysis on Ovaries of Infantile Rodents. A. Mahnert.—p. 1730.
Results of Quantitative Determination of Sex Hormone. H. Siebke and P. Schuschania.—p. 1734.
Puberty Metrorrhagia: Hematologic Examinations and Treatment by Means of Repeated Small Blood Transfusions. E. Maurizio.—p. 1748.
*Experimental Prolongation of Pregnancy by Means of Corpus Luteum Extracts. L. Miklòs.—p. 1755.
Elephantiasis of Clitoris. H. Baumm.—p. 1758.
Modern Filing Cabinet for Use in Clinic. F. C. Wille.—p. 1760.
Solution of Secondary Butylbrompropenylbarbituric Acid Combined with Spinal Anesthesia. E. Heyer.—p. 1764.

Experimental Prolongation of Pregnancy by Means of Corpus Luteum Extracts.—Miklòs states that the function of the corpus luteum and especially its hormonal secretion have been investigated by various authors. He reviews the results of these investigations and then describes his own experiments on rats. It was found that following several injections of corpus luteum extracts the pregnancy of the rats was prolonged not only beyond the average length but even beyond the longest term. Regarding the development of the young, the author states that some of them were somewhat heavier than young rats that had developed without the influence of corpus luteum extracts. It is also noteworthy that, in some of the animals in which the pregnancy was prolonged as the result of corpus luteum injection, the young were dead at birth. It is known that overterm pregnancies in human beings also frequently result in stillbirth. The author thinks that his experiments demonstrate that the corpus luteum influences the termination of pregnancy. However, he does not consider it the only factor. It was also noted that injection of corpus luteum extract on the last day of pregnancy did not cause a prolongation.

Finska Läkaresällskapets Handlingar, Helsingfors

72: 415-509 (June) 1930

*Conservative Treatment of Dacryocystitis and Dacryostenosis. E. Kuhlefelt.—p. 425.
*So-Called Intestinal Infantilism. M. Edgren.—p. 440.
*Fibril-Forming Power of Epithelioid Cells in Tuberculous Tissue. I. Wallgren.—p. 450.

Conservative Treatment of Dacryocystitis and Dacryostenosis.—Kuhlefelt has treated conservatively even the gravest cases of dacryocystitis and dacryostenosis and on the basis of his experiences believes that operative intervention is rarely necessary.

So-Called Intestinal Infantilism.—Edgren reports thirteen cases treated from 1923 to 1929. Five patients died, three are well, and the fate of the remaining three is unknown. Investigations in two cases showed greatly lowered fat resorption, the loss of fat amounting to from 34.1 to 53.1 per cent of the fat intake.

Fibril-Forming Power of Epithelioid Cells in Tuberculous Tissue.—Wallgren's results support the view that the fibrils in tuberculous tissue develop from the epithelioid cells.

Norsk Magasin for Lægevidenskapen, Oslo

91: 705-832 (July) 1930

*Syphilis-Arsphenamine-Paratherapeutic Jaundice. H. C. Gjessing.—p. 705.
Occupational Melanoderma: Two Cases. P. L. Rotnes.—p. 719.
Epidemic Lobar Pneumonia. J. Riddervold.—p. 731.
*Grave Anemia: Two Cases. H. F. Høst.—p. 739.
Intravenous Pyelography with the Sodium Salt of 5-Iodo-2-Pyridon-N-Acetic Acid. E. Hjort.—p. 753.
*Phlegmonous Duodenitis: Case. E. Hjort.—p. 758.
*Demonstration of Tubercle Bacilli by Cultivation. O. Sundt.—p. 763.
Renal Glycosuria. L. T. Poulsson.—p. 770.
*New Method of Roentgen Examination of Symphysis Pubis in Women. T. Dale.—p. 782.
Course of Bile and Pancreatic Ducts in Patients with Necrosis of Pancreas. E. Hegge.—p. 786.

Syphilis-Arsphenamine-Paratherapeutic Jaundice: Attempt at Orientation.—Gjessing reports nine cases in syphilitic persons. He believes that the majority of cases of jaundice appearing during arsphenamine treatment, probably also most cases of posttherapeutic jaundice are of infectious nature. Although intertherapeutic or posttherapeutic jaundice can often be cured during arsphenamine treatment or by continued arsphenamine treatment, respectively, arsphenamine should, he says, as a rule not be used, as it is at present impossible to distinguish between the forms in which the treatment is advisable and in which it is dangerous. Even when the probable diagnosis is syphilitic jaundice, arsphenamine should generally be discontinued until the jaundice is past.

Grave Anemia: Two Cases.—Of Høst's cases, both fatal, the first was diagnosed as aplastic anemia, the second, regarded as a peculiar, nonpernicious anemia or an aleukemic myelosis. Massive and frequent blood transfusions resulted in but slight rise in the erythrocyte count.

Phlegmonous Duodenitis: Case.—In Hjort's patient with high fever and all the indications of gravest peritonitis, no signs of peritonitis were found on operation or at necropsy, but in the duodenal wall there was a phlegmon, together with a large number of apparently acute ulcerations in the mucous membrane.

Demonstration of Tubercle Bacilli by Cultivation.—Sundt thinks that in the examination of sputums this method will never supplant direct demonstration of tubercle bacilli, but after repeated negative examinations cultivation may well be attempted. Hohn's method was used by him in twenty-eight such cases, with cultures of bacilli in seven. In his opinion cultivation from pleural exudates and pus offers great possibilities. In examination of the urine the method seemed somewhat less reliable than inoculation in guinea-pigs, but he agrees with other investigators that the two procedures should be used simultaneously.

New Method of Roentgen Examination of Symphysis Pubis in Women.—Dale passed a tube of aluminum 1 mm. thick into the vagina directly back of the symphysis, the film being placed on a holder in the tube. The results of examination in seventy-nine cases are presented. The roentgenograms gave a clearly defined picture with correct measurement of the distance between the pubic bones.

Ugeskrift for Læger, Copenhagen

92: 647-668 (July 3) 1930

Isolation of Hormone of Anterior Lobe of Hypophysis from Urine of Pregnant Women. C. Hamburger and K. Pedersen-Bjergaard.—p. 647.
*Dextrose Treatment of Hepatic Complications Accompanying Calculus in Ductus Choledochus. H. Abrahamsen.—p. 649.
Surgical Diathermy of Hemorrhoidal Tumors. E. H. Rager.—p. 652.
Electrical Lesion of Auditory Organ. K. Egeblad.—p. 654.

Treatment of Hepatic Complications Accompanying Calculus in Ductus Choledochus.—Abrahamsen definitely recommends energetic attempts with dextrose-insulin treatment in case of stone in the ductus choledochus with cholangeitis and parenchymatous degeneration of the liver. His experiences in the two cases reported wholly agree with the favorable results obtained in medical cases by dextrose-insulin treatment of acute or subacute atrophy of the liver. He emphasizes that his patients, both greatly exhausted were operated on in lumbar anesthesia, without the further weakening of the liver due to chloroform and ether.

92: 669-688 (July 10) 1930

*Etiology of Polyarthritides. V. Starcke.—p. 669.
Effect of Operative Interventions on Blood Platelet Count. J. Foged.—p. 678.
Viper Bite. V. Poulsen.—p. 681.

Etiology of Polyarthritides.—In Starcke's review, rheumatic polyarthritides are classed as an interference phenomenon due to various causes that may vary in significance and intensity from type to type and from case to case. Infection is particularly emphasized among the etiologic factors in polyarthritides, and streptococci play the most important part. Pathologic conditions of the joints due to streptococci will probably be regarded as a nosologic entity, like tuberculosis of the joints. The susceptibility to infection and the different characteristics in polyarthritides must depend largely on constitutional differences. Greater importance must be attached to endocrine disturbances as factors in the etiology and pathogenesis. The bibliography contains 149 references.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 95, No. 15 Chicago, Illinois October 11, 1930

GALLSTONES IN THE AMPULLA OF VATER *

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The bile in passing from the liver to the intestine passes through a duct of more or less uniform diameter, which is suddenly narrowed at the point where it enters the duodenum at the papilla of Vater. Anatomically a stone would be most likely to meet resistance at this point in its passage down the common bile duct. Likewise at this point the flow of bile would be most easily obstructed. The average diameter of the opening at the tip of the papilla is about 3.5 mm. Just proximal to this opening is found the dilated pouch, approximately 1 cm. in diameter, into which the common bile duct and pancreatic duct usually empty. This is the so-called diverticulum or ampulla of Vater. Fenger, many years ago, described the symptoms of stone lodged in the ampulla, the "ball-valve stone of Fenger." Because a stone at this point causes a somewhat characteristic chain of symptoms, we decided to review a series of such cases seen at the Mayo Clinic.

A group of 160 cases was selected in which one or more stones were found in the ampulla at operation and in which other stones were not found in the hepatic or common bile ducts. In many other cases stones were found lodged in the ampulla, but they were associated with stones in other portions of the extrahepatic bile ducts; such cases were not included.

As would be expected, the majority of the patients were past middle age, the average age being 50 years; three fourths of the patients were aged between 40 and 60 years. The youngest patient was a boy, aged 15 years, who had a history of repeated attacks of typical biliary colic associated with chills and fever over a period of eighteen months, although he had never been jaundiced, according to his parents' observations. A diseased* gallbladder containing multiple stones was removed. The common bile duct was found to be dilated, and a stone 5 mm. in diameter was removed from the ampulla.

The ratio of females to males was approximately 2: 1, which is about the usual ratio of frequency of stones in the gallbladder, in the two sexes.

In 72 (45 per cent) of the 160 cases, one or more operations had been performed on the biliary system; in several cases as many as three or four operations had been performed: cholecystostomy, cholecystectomy or choledochostomy, or all three. In 55 per cent of the cases, relief had not been obtained and the patients continued to suffer from the symptoms that they had had prior to the operation. In 24 per cent of the cases there had been a period of complete relief following the operation, varying from three months to thirty years; in the remaining 21 per cent some relief had been obtained, but enough of their original symptoms persisted to induce the patients to seek further relief. Fifty-four patients had had cholecystostomy performed, thirty-three had had cholecystectomy, and seven had had choledochostomy. Seventeen (10.6 per cent) of the patients had external biliary fistula when they presented themselves for examination at the clinic, some of them for as long as two years.

SYMPTOMS AND DIAGNOSIS

In the diagnosis of stone in the common bile duct a thorough and complete clinical history usually offers the most useful clue to the diagnosis in spite of recent diagnostic refinements and laboratory aids. The most characteristic feature of stone in the common bile duct is the intermittent nature of the symptoms. Osler described the classic symptoms of stone in the common bile duct as paroxysms of colicky pain, chills and fever, and jaundice, followed by intervals of comparative or complete freedom from symptoms. Most patients suffering from stone in the ampulla of Vater present a history of intermittent trouble, although any one or more of these symptoms may be lacking. It is well known that a stone in the common bile duct may lie dormant for months or years without producing appreciable symptoms. The stone may then lodge against the wall of the duct or at the papilla, producing irritation of the mucous lining of the duct with inflammatory reaction and edema, occluding the duct around the stone and giving rise to biliary obstruction. This is the probable explanation of many of the attacks of colic. If there is infection, as there usually is in the bile behind the obstruction, symptoms of sepsis appear, and if the obstruction is more or less complete, jaundice becomes evident. We recently operated on a woman, aged 76, who presented all the classic signs and symptoms of stone in the common bile duct. The history in this case was that of only six months of repeated attacks of severe right upper abdominal colicky pain extending through to the back, associated with chills and fever up to 104 F. and followed by residual soreness and jaundice lasting from a few days to a week or two. During the eight weeks prior to admission the attacks had been frequent, each time with severe pain, chills and fever, and followed by jaundice; the succeeding attack would come before the jaundice had entirely cleared. The patient was jaundiced; the serum bilirubin was 8.5 mg., and the van den Bergh reaction was direct.

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* From the Mayo Clinic.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

During the period of observation in the hospital the jaundice subsided somewhat, and the flow of bile from the duodenum was moderately free. At operation the common bile duct was found to be about 2 cm. in diameter. A solitary stone 15 mm. in diameter was lodged in the ampulla. The gallbladder was almost completely destroyed.

Pain is the most common symptom of stone in the common bile duct. The pain usually is of the classic colicky type. *In our cases the pain was either mild or* severe in 155 of the 160 cases. In five cases a most careful examination could not elicit a history of pain of any kind. Many of the patients, especially after a long history of recurring attacks of colic, followed by a period of relative comfort, gave a history of several months of more or less constant dull pain in the upper part of the abdomen in addition to the attacks of colic. Jordan recently studied 106 cases of stone in the common bile duct at the Mayo Clinic. In six of these cases there was no history of pain at any time, and there were ten additional cases in which the onset of jaundice was painless. The attacks of colic were usually associated with a gastric disturbance: epigastric fulness, bloating, nausea and vomiting.

Intermittent jaundice was present in 117 (73 per cent) of our cases. It usually lasted a few days or a few weeks and was followed by a period of complete freedom. There were thirty-seven cases (23 per cent) in which a history of jaundice could not be elicited at any time during the course of the illness. Constant and apparently complete jaundice was noted in only six of the cases for a period of more than a month. There were seven patients who had been constantly jaundiced for one month or less at the time of admission and it was apparent that they had reported for examination during their first attack of jaundice. The serum bilirubin, as estimated by the van den Bergh test, gives a direct reaction and usually varies if the patient is kept under observation for a period of time. In our series the highest reading for serum bilirubin was 22.7 mg. in a case of apparent complete obstructive jaundice of five months' duration.

Symptoms of sepsis, as evidenced by attacks of chills and fever, were present in eighty-one (51 per cent) of the cases. In many of the cases the ague-like paroxysm was severe, amounting to rigor, with the temperature going to a peak of from 104 to 105 F., followed by a rapid decline.

Duodenal drainage, accomplished by the passage of a small soft Rehfuss tube in the duodenum, affords a valuable clue as to whether or not bile is passing from the duct into the duodenum. Bile was recovered on duodenal drainage in 83 per cent of the cases. In several of the remaining cases only one attempt at duodenal drainage was made and it is possible that further attempts at drainage might have recovered bile in a higher percentage of cases. Certainly in most cases of stone in the common bile duct, bile in varying amounts can be recovered from the duodenum if duodenal drainage is done repeatedly.

There was a definite group of cases of stone in the common bile duct in which the only characteristic symptom was severe colicky pain. An example of such a case is a woman who was recently operated on at the clinic. She was aged 57, and gave a history of typical biliary colic dating back twelve years. In the four years before admission, the attacks had been frequent; cholecystectomy had been performed elsewhere eighteen months before admission. There had been no jaundice prior to operation. Three weeks after operation she had a recurrence of colics, and they were more frequent and more severe, each requiring a hypodermic for relief. There never was a history of chills, fever or jaundice. At operation the common bile duct was found to be enlarged several times its normal size. It was thin walled and blue, and contained normal bile under tension. An irregularly shaped stone about 7 mm. in diameter was found lodged in the ampulla. No other stones could be found in the duct, and the probe passed freely into the duodenum.

OBSERVATIONS AT OPERATION

In 124 (77 per cent) of the 160 cases a single stone was found in the ampulla at operation. In fifteen (9.5 per cent) there were two stones and in twenty-one (13 per cent) there were more than two. The stones varied in diameter from 3 mm. to 2.5 cm. In 110 cases (69 per cent) there were stones in the gallbladder as well as in the ampulla; the stones in the gallbladder were found at the clinic, or a definite history was elicited of stones removed from the gallbladder at operation elsewhere. There were forty-two (26 per cent) cases in which a stone in the ampulla was the only stone present in the biliary system and there were eight cases in which a stone in the ampulla was the only stone found at the time of operation at the clinic, but we could not be sure that stones had not been removed previously elsewhere. *In many of the cases the stone in the ampulla was found* firmly lodged and adherent to the mucosa of the duct. In others the stone was small and round and apparently floating free.

As has been noted, the condition of the gallbladder at operation was frequently somewhat fibrous and contracted, often down to a small amount of fibrous tissue appearing as a small pouch protruding from the common bile duct. There were twelve cases in which there was a cholecysto-enteric fistula. In nine cases the fistula opened into the duodenum, in two cases into the colon, and in one case into the stomach.

In operating to remove stone in the ampulla, we make a longitudinal incision in the common bile duct near the point of entrance of the cystic duct and then explore the duct with a scoop, forceps or examining finger. This procedure was carried out in all but four of the cases in our series; in these, transduodenal choledochostomy was performed because the stone could *not be removed by the other method.*

It is not always easy to make a diagnosis of stone in the ampulla without opening the common bile duct. Because of the situation of the stone between the duodenum and the pancreas, it is difficult to palpate it even if it is of considerable size. Undoubtedly some of the stones would have been missed in our cases had not the common bile duct been opened on the strength of a history suggestive of trouble in the duct. Whether or not a stone can be palpated in the ampulla or common bile duct, it is advisable to open the duct and explore it, if there is a history of recurring chills, fever and jaundice, and if the common bile duct is found to be dilated at the operation. Although noncalculous intermittent biliary obstruction and strictures in the common bile duct may be the cause of persistent symptoms noted after cholecystectomy, many of the failures to relieve symptoms can be attributed to failure to remove a stone lodged in the ampulla.

During the years 1928 and 1929 we operated on 1,663 patients who had gallstones. In ninety-two (5.53 per cent) the gallstones were found only in the common duct. One hundred and twenty-seven (7.6 per cent) had stones in both the gallbladder and the common duct. In the remaining 1,444 patients (86.83 per cent) the stones were found only in the gallbladder. Thus it will be seen that of the 1,663 patients, all of whom had gallstones, 219 (13.2 per cent) had stones in the common duct.

TECHNIC OF OPERATION

The first technical point to be considered in the operation is an incision sufficiently large to admit of the best possible exposure. Exposure of the operative field is more important in these operations than in almost any other. After the incision has been made and the packing off has been completed, the common bile duct should be freed as completely as possible so that the different technical steps may be carried out without danger of injury to other important structures.

When the duct has been exposed it is usually best to grasp it with two delicate Allison forceps. In certain cases it will be better to use the stone in the duct as a guide to the duct, holding the stone with the fingers of one hand, and making the incision through the duct down onto it. The opening in the duct should be large enough to admit the examining finger if the duct is dilated. A fairly large longitudinal incision in the duct can be readily repaired without a tendency to the formation of stricture. Not infrequently, a scoop or a probe will pass by a stone, giving the impression that there is no stone. However, when the duct is large enough to admit a finger, the likelihood of overlooking a stone is reduced considerably.

After the incision has been made in the duct, the bile, débris and loose stones should be gently sponged out and then all of the other free stones should be removed from the common and hepatic ducts as gently as possible. We are certain that considerable harm can come from too vigorous irrigation of the bile ducts, although several times we have been able to flush stones out of the ducts of the liver that probably could not have been removed in any other way.

Removal of the stone or stones from the ampulla is best accomplished by first passing a scoop into the ampulla, then guiding the scoop with the fingers outside the duodenum, gradually manipulating the stone until it is crowded into the hollow of the scoop and holding it in this position as the scoop is gradually withdrawn. We find that the surest way to palpate a small stone in the ampulla, especially when the surrounding pancreatic tissue is swollen, is to pass as large a probe as will comfortably fit into the common bile duct gently down into the ampulla, and then to palpate the ampulla, leaving this instrument in place as a guide. In many cases the duct is greatly elongated, and there may also be considerable enlargement of the head of the pancreas, which makes it difficult to locate the ampulla even when there is a fair-sized stone in it. One of the best instruments for locating the ampulla and also for demonstrating whether it is open or not is a large curved hemostat. We have frequently been able to pass such an instrument into the duodenum when nothing else would go through the ampulla.

We realize how difficult it is to be sure that all stones have been removed. Occasionally they will be overlooked when the greatest care has been exercised, and in some instances they will reform. We do not feel that efforts to clear out all calculi should be carried to the point of too great trauma to the tissues. We have seen one case of stricture following removal of stone from the ampulla. Apparently this rarely occurs, but severe infection may follow energetic probing and dilating. If the gallbladder has been removed or destroyed, the activity of the sphincter at the ampulla will be overcome so that there will be free passage for small stones or débris into the duodenum. We believe that it is far more important to provide prolonged drainage by T-tube in these cases of stone in the ampulla than it is to dilate the passage into the duodenum forcibly. Drainage of the duct should always be carried out after removal of stones from the ampulla, and this is best done with the Deaver T-tube. By this method, complete control is obtained of the flow of bile after the wound has healed around the tube. If the lower end of the duct is opened widely, then bile will pass through the tube into the duodenum, whereas if the ampulla is closed from swelling or any other cause, the bile escapes to the outside through the long arm of the tube. Often when bile is needed for the welfare of the patient it may be forced into the duodenum by clamping the outside tube. Another advantage of this plan of drainage is that this tube may be used as MacArthur suggests, for the administration of fluids, dextrose and any form of liquid nourishment.

In our group of 160 cases of removal of stones from the ampulla, there were eleven deaths, a mortality of 6.8 per cent. In four cases in the series a transduodenal operation was performed; this method was used because it did not seem possible to remove the stone through an incision in the common bile duct. In all of the four cases the common bile duct was first opened and an attempt was made to remove the stone through that incision. Failing to get it in this way, the duodenum was opened and the stone was removed through the duodenum. We now believe that it is always possible to remove stones from the ampulla through an incision in the common bile duct, and that operations through the duodenum are seldom necessary and are carried out at a considerably higher risk. We have not, however, attempted to perform the operation just as McBurney described it.

ILLUSTRATIVE CASES

CASE 1.—A man, aged 58, came to the clinic, May 30, 1929, complaining of recurring attacks of severe pain in the upper part of the abdomen. Twenty-two years previously, he had had a severe attack of colic, followed by jaundice. The colic recurred at infrequent intervals until operation was performed elsewhere in April, 1928. Cholecystostomy was done and stones were removed from the gallbladder. The wound drained for three and a half weeks, and then closed. The patient was then well until six weeks before admission, when he had had a severe typical attack of gallstone colic, and one week later he noticed dark urine and clay-colored stools. During the three weeks prior to admission he had had three attacks of upper abdominal pain with chills and fever, the last one, with jaundice, ten days before admission. Otherwise, he had a rather typical history of peptic ulcer dating back eight or ten years, with pain coming on from two to three hours after meals, relieved by taking food or alkaline powder.

The patient was somewhat emaciated, and weighed 23 pounds (10 Kg.) less than his usual weight. He was faintly jaundiced; the serum bilirubin was 4.3 mg. for each 100 cc., and the van den Bergh reaction was direct. Tenderness was elicited in the right upper part of the abdomen. The blood urea was 34 mg. for each 100 cc. Roentgenograms of the stomach and duodenum showed duodenal ulcer. All other laboratory examinations were negative.

At operation, June 6, the gallbladder was found to be somewhat distended but did not contain stones. The common bile duct was opened and was explored with a scoop, but stones were not found. The scoop passed readily through the ampulla into the duodenum. There was a large subacute duodenal ulcer on the anterior surface of the duodenum. The patient's general condition was not good, so a rubber catheter was stitched into the jejenum after the method of Witzel instead of gastro-enterostomy. The catheter was brought out through a stab wound in the left rectus abdominis muscle. A Mayo-Robson hepaticus drain was left in the common bile duct and a dressed tube was left in the gallbladder.

During the first three days after operation, there was drainage of rancid, sour-smelling, thin, flocculent bile-covered fluid, 1,175, 1,530 and 1,425 cc., respectively. Methylene blue (methylthionine chloride-U. S. P.) given by mouth appeared copiously in the drainage material. Examination of the material showed the presence of a large amount of starch-splitting enzyme. On the third day the blood urea was 67 mg. and on the fourth day 74 mg. for each 100 cc., and the patient appeared extremely ill. The margins of the wound were reddened and irritated from contact with the drainage material. On the fourth day the end of the Mayo-Robson drain was connected directly with the jejunostomy tube so that the fluid draining from the common bile duct poured directly back into the jejunum. The patient was given fluids in abundance, including physiologic solution of sodium chloride intravenously, 2,000 cc. daily. He seemed to improve but on the seventh day bronchopneumonia developed and he died on the eleventh day.

At necropsy the Mayo-Robson tube was found in place in the common bile duct. There was slight necrosis of tissue around the tube as it coursed over the duodenum. The common bile duct was 12 mm. in diameter and there was a stone, 6 by 8 mm., impacted in the ampulla. The pancreatic duct entered the common bile duct 1 cm. above the sphincter of Oddi and therefore proximal to the impacted stone. Other stones were not found in the ducts or gallbladder. A large subacute ulcer on the anterior surface of the duodenum and two smaller ulcers on the posterior wall were found. The lungs showed extensive bilateral bronchopneumonia.

Case 2.—A woman, aged 68, admitted to the clinic, March 30, 1930, gave a history of recurring attacks of upper abdominal colic dating back twenty years, each attack with a sudden onset and requiring hypodermics for relief. There had never been any chills, fever or jaundice prior to cholecystostomy, which had been done elsewhere five years before admission. At the time of operation the gallbladder was drained and many stones were removed. After the operation she had a rather slow convalescence. The sinus remained open intermittently for several months, but then it closed and the patient was well for one year. Then she had a recurrence of the colicky attacks similar to those she had had before the operation, but in each case they were followed by a period of mild jaundice for from two to ten days.

On examination the patient was found to be rather obese and to have moderate benign hypertension. The blood pressure was 220 systolic and 120 diastolic. There was slight tenderness in the epigastrium. Duodenal drainage showed ample bile on two occasions. The serum bilirubin was 4.1 mg. for each 100 cc., and the van den Bergh reaction was direct. A flat roentgenogram of the area of the gallbladder was negative. There were slight changes in the electrocardiographic tracing, but there were no signs of cardiac decompensation. The coagulation time was eight minutes.

At operation the gallbladder was contracted and completely destroyed. The common bile duct was dilated and a single stone 1 cm. in diameter was lodged in the ampulla. There was a moderate amount of cholangeitis. The gallbladder was easily removed, a stone was removed from the ampulla and a T-tube was sutured into the opening of the common bile duct.

Following the operation the T-tube drained freely, but on the fourth postoperative day there were signs of cardiorenal insufficiency and the blood urea was 124 mg. for each 100 cc. Fluids were injected intravenously, and the blood urea promptly returned to normal. By the twelfth day the jaundice had cleared and clamping of the tube was begun. On the twenty-eighth day the T-tube was removed without difficulty. At that time the general condition of the patient was good; she was free from jaundice and there was ample bile in the stools. Following the removal of the T-tube the sinus healed in twenty-four hours, and recovery was complete.

Case 3.—A woman, aged 44, admitted to the clinic, March 9, 1930, gave a history of having had rather typical attacks of gallbladder colics frequently during the preceding year, several of which were followed by dark urine and light stools; after one attack three months before admission, definite jaundice was present. Nine weeks prior to admission she was operated on elsewhere and the gallbladder was removed and was reported to be infected, but without stones. After the operation she did not have colic, but the stools continued to be light-colored and there was a persistent biliary sinus through the operative wound. One week before admission this sinus stopped draining and the patient had since had pain across the upper part of the abdomen, nausea and vomiting, and jaundice.

On examination it was found that the patient was moderately jaundiced. The serum bilirubin was 4.9 mg. for each 100 cc., and the van den Bergh reaction was direct. The coagulation time was eight minutes. There was moderate anemia; the hemoglobin was 65 per cent and the erythrocytes numbered 3,520,000. There was a small sinus in the operative incision in the right upper quadrant of the abdomen which, at the time of examination, was not draining. The temperature was normal.

On duodenal drainage on several occasions following admission, a fair amount of normal-appearing bile was recovered from the duodenum. During the six days' observation in the hospital before the operation, the patient felt better and the jaundice subsided somewhat.

At operation the sinus tract led down to a good-sized remnant of the lower end of the gallbladder. The common bile duct was dilated and a stone 1 cm. in diameter was removed from the ampulla. It was thought that a probe passed through the ampulla into the duodenum, and normal-appearing bile came from the common bile duct. There was mild hepatitis and mild biliary cirrhosis. A T-tube was sutured into the common bile duct, and the remnant of the gallbladder was removed.

The postoperative convalescence was entirely uneventful. The T-tube drained freely from 500 to 700 cc. of normal-appearing bile each twenty-four hours. Clamping of the tube was begun on the fourteenth day and was continued progressively until the tube was removed on the twenty-eighth day. At that time the patient was entirely free from jaundice, the stools were of good color and her general condition was good. The sinus, following the removal of the T-tube, healed within forty-eight hours, and recovery was complete.

RELATION OF THE SPLEEN TO JAUNDICE *

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In a consideration of the relation of the spleen to jaundice it must first be borne in mind that the erythrocyte is the chief source of hemoglobin from which the formation of bile pigments must originate. Therefore, the relation of the normal and the pathologic spleen to red blood cell destruction is the hub around which the entire discussion must revolve.

The spleen may destroy red blood cells by an intracellular process which is dependent on the action of the macrophages or by an extracellular action which must be distinctly a lytic process.

The formation of bile pigments in the spleen must be dependent on a definite splenic hemolysis, but to argue a hemolytic function for the spleen based on the blood picture of splenectomized animals encounters difficulties that cannot be surmounted.

In the presence of jaundice associated with a large spleen one is at once confronted with the fact that there is both an intrahepatic and an extrahepatic formation of bile pigments. The extrahepatic source of bile pig-

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* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

ment is in the reticulo-endothelial system, of which the spleen probably plays a minor part, while the bone marrow is really the chief depot for bilirubin formation. In a careful review of the literature there is nothing to confirm a controlling influence of the spleen on the formation of bile pigments in the liver, and all researches make the the conclusions most doubtful.

Mann[1] has shown that the large proportion of bilirubin in the blood is formed in the bone marrow; hence, in the discussion of the spleen in its relation to jaundice, it at once becomes necessary to consider the relation of the spleen to the bone marrow. It is a rather generally accepted idea that the blood picture after splenectomy indicates that the bone marrow has partaken of a resulting stimulation. This conviction follows the increase in red blood cells, normoblasts and blood platelets, and especially convincing is the presence of Howell-Jolly bodies in the red blood cells. Equally interesting is the consideration of the reticulocyte count in the presence of hemolytic jaundice and obstructive jaundice. In familial hemolytic jaundice and in sickle cell anemia there is a high reticulocyte count at all times. In hemolytic jaundice (not familial) the reticulocyte count shows only a moderate increase, while in obstructive jaundice there is no increase of reticulocytes and no increased fragility of the red cells. However, it does not theoretically follow that a normal or pathologic spleen has any inhibitory action on the bone marrow. Lauda[2] says that the changes in the red blood cell count after splenectomy cannot be interpreted by the exclusion of the spleen and, further, that destruction of red blood cells in the spleen has not been proved for, so far, it has not been established that the efferent blood in the splenic vein contains fewer red blood cells than the afferent blood to the organ through the splenic artery.

Barcroft[3] ably reasons that irritation of the bone marrow after splenectomy is due to the reduction of the organism's total hemoglobin content and is comparable to the state of acute anemia from massive loss of blood which is generally conceded to produce bone marrow stimulation as evidenced by the blood picture. Barcroft holds that the spleen is merely a large depot of hemoglobin which empties by contraction and that the entire depot supply is summarily depleted by splenectomy. If Barcroft's conclusions are to be accepted then there is at once some basis of explanation for the source of abnormally large amounts of bile pigment in pathologic hypertrophy of the spleen and can thereby theoretically account for a definite relationship of the enlarged spleen and the presence of jaundice. With further reference to the relation of the spleen to the bone marrow one must consider the question of reduced resistance of the red blood cells in the presence of a pathologic spleen, for it is well established, beyond controversion, that the resistance of the red blood cells is invariably increased after splenectomy, whether the organ is normal or pathologic. Further, it is well known that this increased resistance of the red blood cells persists for many years after splenectomy. However, as an argument against the spleen alone and contending for the relation of the spleen to the bone marrow, it may be added that the difference in the resistance of the red blood cells in the splenic vein and the vascular supply of other regions has not been proved.

Following Barcroft's conclusions that the spleen is a depot for hemoglobin or a storehouse of iron deposit, one can again find some justification for the so-called clinical syndrome of splenic jaundice as follows: In both physiologic and pathologic conditions it is known certainly that the red blood cells are broken up in the peripheral circulation: The first step in this process is most probably due to aging of the cells and the resulting products are hemoglobin, stroma and iron pigment which the German workers designate as Schlacken. This slag is taken up by the spleen and in the presence of exaggerated function or hypertrophy there may be a failure of the cellular activity or the filter function of the organ and thereby pigments may escape into the general circulation and be deposited as jaundice. Lauda says that normally this would be a passive rôle of the spleen but in disease condition with hypertrophy the process would probably be an active one.

BILIRUBIN FORMATION IN THE SPLEEN

There are many researches which justify the conclusion that under physiologic as well as under certain pathologic conditions the spleen influences the production of bilirubin. There are may ways by which the spleen may influence the process of changing the red blood cells into bilirubin, yet knowledge in this respect is defective. It may, however, be concluded with certainty that the spleen has an active part in the destructive metamorphosis of blood but it must be conceded that the spleen in some measure produces bilirubin which is derived from the products of hemoglobin and stroma following decomposition or fragmentation of the red blood cell. This can hardly be called a hemolytic process since lysis is often completed in the peripheral circulation before the red blood cells reach the spleen, thus accounting for the destruction of hemoglobin in the spleen.

McLeod and Pearce[4] state that the blood of the splenic vein contains more bilirubin than arterial blood. These authors also state that the veins of the bones contain more bilirubin than arterial blood. To support this contention Haldeman,[5] by the berlin blue method of identifying iron-containing pigment, concludes that the greater percentage of bilirubin is formed in the bone marrow while the liver, spleen and lymph nodes play a lesser rôle in this production.

It has been repeatedly stated in literature that the jaundice of hemolytic icterus disease is not a true jaundice but is due to the deposits of hemosiderin in the tissues. Stanley Cooke has demonstrated that hemosiderin is identical with ferric hydrate and results from changes of iron deposited in the splenic sinuses. Iron is liberated by the breaking down of hemoglobin into bilirubin; and, since it is known that the iron content of the spleen is fairly constant, Barcroft's conclusions may be concurred in that the spleen is merely a storage depot for iron until this is again utilized in the building up or formation of new hemoglobin. Barcroft states that hemosiderin is found in the splenic sinuses as a brown or blackish material and is expelled into the general circulation each time the spleen contracts. He further states that he has never seen it in the splenic artery but that it constantly occurs in the splenic vein.

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[1] Mann, F. C.: The Extrahepatic Formation of Bilirubin, in Asher, L., and Spiro, K.: Sonderdruck aus Ergebniss der Physiologie, München, J. F. Bergmann, 1925, vol. 24.

[2] Lauda, E.: The Problem of Splenic Hemolysis, Ergebn. d. inn. Med. u. Kinderh. **34**: 1-110, 1928.

[3] Barcroft: The Spleen and the Circulation, Proc. Staff Meet., Mayo Clinic **4**: 302 (Oct. 9) 1929.

[4] McLeod, J. J. R., and others: Physiology and Biochemistry in Modern Medicine, ed. 5, St. Louis, C. V. Mosby Company, 1926, pp. 90-93.

[5] Haldeman, K. O.: A Histologic Study of the Formation of Bile Pigment, Arch. Path. **7**: 993-1011 (June) 1929.

In the light of present knowledge I think that I am forced to conclude that the pigmentation of hemolytic icterus is due both to hemosiderin and to bilirubin, which, being excessive in the general circulation, is deposited into the tissues. Associated with the splenic enlargement of hemolytic icterus and pernicious anemia there is always associated hyperbilirubinemia which cannot be explained as entirely splenic in origin, for the failure of the liver to filter and deliver this excess of bilirubin must have a most important bearing on the condition of so-called splenic jaundice.

McNee's[6] classification of jaundice into three types lends a plausible explanation to this problem of splenic jaundice. In his third classification he states that the jaundice is due to an excessive load of the products of blood destruction which the polygonal cells of the liver are unable to handle and as a result of this faulty transmission the bile pigments are taken up by the hepatic veins and are thus carried into the general circulation. One may accept the condition of hemolytic icterus as an entity which would fairly represent the various pathologic conditions of the spleen in which so-called splenic jaundice is known to exist. However, one is forced to conclude from all of the studies of this problem that hemolytic jaundice is a disease of the entire hematopoietic system and the source of jaundice is not only from the spleen but also from the liver and bone marrow, and the good effects of splenectomy in this condition can probably be explained as follows:

The pathologic spleen delivers its blood (containing large amounts of pigment) directly and in large amounts to the liver, and the polygonal cells are unable to filter the excessive load put on them. After splenectomy this excessive load on the liver is lifted, yet destruction of the red blood cells continues to take place, not only in smaller quantities but in remote areas, such as the bone marrow and other remaining parts of the reticulo-endothelial system. However, these products of red blood cell destruction, coming from areas remote from the liver, reach this organ by a longer and slower route and probably in a much less concentrated form; hence the liver cells are better able to deliver the pigments into the bile ducts.

CONCLUSIONS

From a correlation of research facts taken from the literature up to the present date, I think that I am justified in concluding as follows:

1. A certain amount of red blood cell destruction takes place in the spleen.
2. A certain amount of bilirubin is formed in the spleen.
3. The amount of red blood cell destruction and bilirubin formation in the spleen is relatively small as compared with the consummation of these functions elsewhere in the body.
4. That hyperbilirubinemia associated with dysfunction of the spleen is dependent on not only the spleen but the entire hematopoietic system must be considered as an important contributing factor in evaluating the relation of the spleen to jaundice. Particularly must it be remembered that there is commonly associated a hepatitis in which failure of the liver cells to filter bile pigments represents an active rôle in the production of the jaundice.

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6. McNee, J. W., and Prusik, B.: Discussion on Jaundice, Brit. M. J. 2: 495 (Sept. 20) 1924.

THE CLINICAL SIGNIFICANCE OF JAUNDICE *

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The clinical significance of jaundice has been the same for the past twenty years or more. Jaundice should have no different meaning in the eyes of the surgeon than it has for the physician. The first question occurring to any one contemplating the jaundiced patient regardless of all else should be, Is there stoppage of the bile ducts? When this query cannot be answered in the affirmative, jaundice becomes a medical problem and the physician proceeds to make hard work of its solution. As long as the physician continues to classify his nonsurgical jaundiced patient by old fashioned and established methods, his job is not so difficult. He makes it easy by the use of convenient names such as catarrhal jaundice, infectious jaundice or icterus gravis as determined by certain more or less related symptoms.

Whenever the physician undertakes a rational study of the patient and attempts to speak of this disease in pathologic physiology, study lags for want of methods; and although words are present to speak in physiologic terms, ideas are very scanty. The physician makes his job harder still because of what he knows in an incomplete way about the association of jaundice with blood diseases. Charged with that responsibility of those half known facts he has set himself to a lot of testing of the blood and the bile, none of which work, unfortunately, helps the patient very much. From this welter, the physician has not yet been extricated. Although the physiologist and the pathologist have in recent times thrown great light on the problem of the formation of bile pigment and on certain functions of the liver, little has developed to help the surgeon with his question about stoppage of the ducts. After all, whether to physician or to surgeon, the first and most important *significance of jaundice is the possibility of stoppage* of the ducts. The principal topic of this paper, then, is obstructive jaundice.

To make a diagnosis of obstructive jaundice, one of the three common procedures is generally followed: 1. If there is a history of colic, one argues from cause to effect and says that the stone that causes colic obstructs the duct. 2. Tests for liver disease or tests of liver function can be done, and the finding of liver disease or disordered function excludes obstruction by substituting another cause. 3. The symptom of jaundice can be studied to see whether obstruction of the ducts alone could give such a distribution of bile pigment.

As to the first procedure, nothing more need be said, because the issues are simple. As to the second—the liver tests—much has been said because the issues are obscure, not because any of the tests are especially helpful. I do not refer here to cholecystograms by Graham's method. These tests, being for gallbladder function, are to be classed with the history of colic in simplicity and clearness. This method of study, which has become the most valued of all, unfortunately cannot be used when jaundice has fully developed.

All other dye tests apparently cannot be used when jaundice is present, or if they are used the dyes are disposed of by the liver in the same manner as is bile pigment. The new dye described by Evarts Graham may be an exception.

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* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

As to other tests, no examination of the blood serum can explain the mechanism of jaundice even so far as to say whether the ducts, the liver capillaries or the extrahepatic pigment formation is at fault.

The van den Bergh tests have designated and still are said by some to designate the part of the mechanism at fault. Since the van den Bergh test continues to be lugged along in the journey of medical progress as baggage of possible value, I will not dispose of the test with a single gesture.

This very promising test was originally claimed to detect in the blood bile pigment which had been formed outside the liver and which had not yet been passed through the liver filter. In this instance, the reaction was said to be indirect and indicated jaundice due to excess or anomalous extrahepatic pigment formation. The method might also indicate jaundice when extrahepatic pigment formation was normal, but the liver filter, being disordered, was incapable of removing this normal product so that an intrahepatic jaundice resulted—likewise the "van den Bergh indirect." Whenever, on the other hand, normal pigment from its usual source, wherever that might be, had successfully passed the liver filter but was collected into obstructed ducts and again taken up by the circulation to cause jaundice, "the van den Bergh direct" was the resulting reaction. This was necessarily classed as obstructive or intrahepatic jaundice—the sort under consideration here.

There can be no doubt that the van den Bergh test results in several reactions, sometimes direct and other times indirect, but there is now no good reason to believe that the direct reaction is caused solely by bile pigment that has passed the liver and then got back into the blood by some means as a result of obstruction, nor is there reason to say that the indirect reaction is caused by bile pigment of a peculiar sort that has not yet gone through the liver filter. Too many exceptions have made the theory of the two kinds of pigment not acceptable, and furthermore other good explanation is found for the two sorts of tests. Numerous writers have reported that the van den Bergh direct reaction is found when bile pigment appears in the urine, and the indirect reaction only when pigment remains in the blood and cannot get into the urine. Others, in harmony with this, go further and say that pigment in simple solution in the blood gives the direct test, while pigment combined as with protein gives the indirect, but that the combined state is not due to the hepatic or intrahepatic origin of the disease but to certain factors inherent in the blood itself that permit the combination.

In other words, bilirubin being a pigment in simple solution is quite capable of staining the tissues more or less persistently, and the blood protein merely takes up the stain and holds it. This staining depends in part on the time and the intensity of the process; it may be modified by bile salts or by other substances in the blood, and it can be reproduced in vitro. At most, the van den Bergh test is a good substitute for examining the urine for bilirubin, only it is much harder to do.

In a recent article by Schiff,[1] describing one of the most extensive applications of the tests, there was apparently no exception among 327 normal persons and patients that the van den Bergh direct reaction occurs with jaundice and bilirubinuria and that the indirect reaction occurs with jaundice with no bilirubinuria, regardless of the pathogenesis of the jaundice. Schiff also reports the direct test—supposed to be due to obstruction of ducts—in all his jaundiced lobar pneumonia patients, in all his catarrhal jaundice patients and in eight out of sixteen patients with cirrhosis of the liver.

Time ought to settle the value of the van den Bergh test; but now that textbooks are including it for the sake of being complete, a long time may be needed. Furthermore, I think it is no exaggeration to say that the newer physiology of bile pigment and liver function written by Mann and his associates, brilliant as it is, has not yet been usefully applied in the clinic to the first question of jaundice; namely, the diagnosis of obstruction.

The third course mentioned—the study of the distribution of bile pigment to see whether stoppage of the ducts alone could explain the jaundice—requires relatively simple laboratory methods. Their very simplicity has impeded their popularity, but the icteric index and the examination of duodenal contents and of feces are simple and of good repute when properly interpreted.

The icteric index is little disturbed by other pigments such as carotin, for carotinemia rarely occurs to a significant degree. With the simple expedient of clearing cloudy specimens by extraction with acetone, they can all be read accurately and easily.

The examination of duodenal contents for biliary pigments is enormously valuable, and so is the examination of feces and urine. Although no satisfactory quantitative methods for duodenal contents or feces and urine are available, quantitative measurements of blood together with qualitative tests on the excreta give evidence about the distribution of bile pigment—such evidence as is necessary to a diagnosis of obstruction. These methods together with certain facts about the physiology of bile pigment make up a useful laboratory study of jaundice, quite in contrast to tests.

What are the main facts in bile pigment physiology that must be considered? Bilirubin is formed in the bone marrow and in the liver, probably in fairly constant amounts,[2] perhaps increased with the total metabolism but not appreciably diminished by any known physiologic process. Bilirubin is present in small amounts in circulating blood, in combination with protein. In this state it does not pass through the kidney to appear in the urine. Whenever there is sudden and marked increase in bile pigment formation, such as occurs in transfusion reactions with hemolysis, there is diffusion of pigment into the tissue (jaundice) and filtration through the kidney (bilirubinuria). Also, whenever there is not prompt passage of pigment through the liver, such as in arsphenamine poisoning of the liver, there is jaundice and choluria. Likewise, when there is good enough filtration, but stoppage of the ducts, there is jaundice and if the blood saturation is great enough there is choluria. When blood and tissues have been stained they remain stained an appreciable length of time according to the degree, and I think somewhat according to the length of time the staining has existed. When blood proteins have combined with pigment, that pigment does not appear in the urine. Bilirubin is excreted by the epithelial cells of the liver, stored in the gallbladder by a process of concentration, or drained into the intestine, where pigment is quickly changed by bacterial action to urobilinogen, a part of which is absorbed by lymphatics and portal vein, a part is degraded further to unrecognizable form, and a part is excreted in the feces as urobilinogen.

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[1] Schiff, Leon: Serum Bilirubin in Health and in Disease, Arch. Int. Med. **40**: 800 (Dec.) 1927.

[2] McMaster, P. D.; Broun, G. O., and Rous, Peyton: Studies on Total Bile, J. Exper. Med. **37**: 395 (March) 1923.

Although all these facts are now commonplace and the icteric index and other methods have been more or less in vogue, it is remarkable how little information about obstructive jaundice has accumulated—information about what happens when the ducts are stopped and bilirubin accumulates. Such knowledge as could be had from the icteric index, duodenal contents and feces in relation to colic would be of great value in many of the clinical problems that arise.

It seems to be customary that, when it is known that a patient has stoppage of the ducts, no further study of his distribution of bile pigment is made. Valuable studies have been made by Rous,[3] by Walters[4] and by others, but elementary facts about stoppage are not now available. How quickly after stoppage in man does the icteric index rise? How long before choluria develops? How long before the stool is clay colored? Will the icteric index reach a level and remain so; that is to say, will the kidneys be able to keep jaundice at a constant level, and if so at what level? Does complete stoppage inhibit the formation of bile pigment? Does icterus ever become so severe as to stain duodenal contents by diffusion through mucous membranes? When obstruction is relieved, how quickly does the index fall? How quickly does the urine clear? How does intermittent obstruction affect the distribution of pigment? How does partial obstruction affect it? In proposing these queries, I am assuming that stoppage can be accurately gaged as to onset, completeness, intermittence and relief.

Such knowledge about stoppage is often not certain; but when it is, few accurate observations are recorded, for it is the custom of surgeons to operate and relieve stoppage, not bothering about the jaundice once its significance is clear. Consequently there is some knowledge about the distribution of bile pigment, but there is not the exact information necessary to an understanding of the patient whose stoppage is within the liver itself, or whose stoppage is associated with disease of the liver as well.

It is well known that there is a reciprocal relation between bile in the duodenum and bile in the blood—which is another way of saying that acholic stools occur simultaneously with jaundice. It is also known that when the storage function of the gallbladder is intact there is a brief delay in the onset of jaundice. But in the main the problem in each case is decided by the history of colic or by feeling the enlarged gallbladder. This is a sure enough way usually, when such information is at hand, but without it there is no way to get the facts.

The differentiation between painless jaundice due to stone and catarrhal jaundice is often impossible; likewise the recognition of arsphenamine jaundice when there has been abdominal pain. No progress in the problem is in sight, if all the measuring and testing are done in the obscure and doubtful cases. It is clearly the duty of the surgeon to write more about obstructive jaundice to aid in the problem. I see no help from the physician who seldom handles obstructive jaundice. I see no help from the physiologist or the biochemist. It is chiefly my aim in this paper to emphasize the value of methods as they now stand; viz., the icteric index and the examination of duodenal contents and feces, when applied to clear-cut and uncomplicated obstructive jaundice. With better information of the common, one can hope to deal with the uncommon. Instead of the surgeon receiving help from the physician in the problems of jaundice, it is clearly the duty of the surgeon to furnish this help to the physician.

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[3] McMaster, P. D.; Broun, G. O., and Rous, Peyton: Changes Caused by Pressure Obstacle to Secretion, J. Exper. Med. **37**: 685 (May) 1923.

[4] Walters, Waltman; Greene, C. H., and Frederickson, C. H.: The Composition of the Bile Following the Relief of Biliary Obstruction, Ann. Surg. **91**: 686 (May) 1930.

PHYSIOLOGIC DISTURBANCES INCIDENT TO OBSTRUCTIVE JAUNDICE

A REVIEW *

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Medical history reveals that the problem of the jaundiced patient is an old one. It occupied a prominent place in ancient Hebrew and Arabian medicine, and this symposium signifies that the problem is not yet solved. Although tremendous progress has been made in the surgery of obstructive jaundice, the same cannot be said regarding the physiologic disturbances. Considerable work has been done and progress made, but the problem has not received the attention it deserves.

The physiologic disturbances incident to obstructive jaundice are too numerous to list and to discuss even briefly in a short review. One can consider only those disturbances which appear to be the most important in the light of present knowledge. That the physiologic disturbances are numerous and complex is to be expected when one considers that bile retained in the biliary passages not only may pass into the blood and thus influence many organs but also may disturb the functions of the liver and the gastro-intestinal tract. Even if bile were not toxic in itself, one would expect disturbances due (*a*) to the effect of excessive biliary pressure on liver function; (*b*) to reflexes excited by excessive biliary pressure; (*c*) to the absence of bile in the intestine, and (*d*) to the effects secondary to these changes.

CAUSE OF DEATH IN JAUNDICE

Toxicity of Bile.—Bile has been thought to be toxic since the beginning of medicine; it is now an established fact. All experimenters agree that adequate quantities of sterile bile introduced intravenously cause death. But there is a surprising lack of agreement as to what constituent of bile is toxic, or most toxic. A glance at table 1 shows that three constituents of bile have been suspected of being toxic; namely, pigment, bile salts and cholesterol. It can be considered as established that cholesterol in the amounts present in toxic doses of bile is not the toxic agent. What the effect of the hypercholesterolemia associated with jaundice might be over long periods of time is another question. It is well established that bile salts in adequate amounts are cytolytic and toxic, and the majority of investigators attribute to these the toxicity of bile. The data on which the claim of high toxicity of the bile pigments[1] is based can be criticized in that the pigments used were impure and the method of administration questionable. The more recent work of Horrall and Carlson[2] and of Still,[3] in which pure bilirubin and bile salts were used, shows that bile salts are toxic and that bilirubin spectrophotometrically identical with circulating bilirubin is not. The existence of some unknown toxic agent in bile is improbable, since the experiments of these investigators indicate that the toxicity of bile salts is sufficient to account for the toxicity of bile. However, the work of Meltzer and Salant,[4] Bunting and Brown,[5] and Greene and Snell[6] indicates that whole bile may be more toxic than its two major constituents.

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[1] Merck's Report **28**: 13, 1914.

Even though the bile salts are chiefly responsible for the acute toxicity of bile, it does not follow that the passage of bile salts into the general circulation in increased amounts is the sole cause, or even a cause, of the disturbances incident to jaundice. One must first be able to answer the following questions: In jaundice do the bile salts accumulate in the blood and tissues sufficiently to be toxic? And, what is the effect of a prolonged but not acutely toxic increase in circulating bile salts? Following the same logic, bile pigments may not be acutely toxic, but the gradual accumulation of bile pigment in the tissues and its prolonged action on them as occurs in jaundice may produce disturbances.

The earlier observers[7] believed that in obstructive jaundice bile acids were increased in the blood, lymph and urine, but they were puzzled by the small amounts found. For example, Bischoff[8] found a maximum of only 0.34 Gm. of bile salts eliminated in the urine in twenty-four hours in a deeply jaundiced patient, and Hoppe-Seyler[8] had to use 30 liters of urine from a jaundiced patient to obtain a positive qualitative test. More recent observers,[9] using better methods, have verified the earlier work and found that during the first week or two following obstruction the blood and urine bile acids increase but thereafter fall to normal levels. It has been suggested by some[10] that in jaundice the blood destroys the bile acids. Weintraud[11] offered an explanation which has more in its favor; namely, that the liver ceases forming bile acids. This is also suggested by Brakefield and Schmidt[9] and Snell, Greene and Rowntree.[9] The latter investigators have shown that serum bilirubin also tends to decrease in the later stages of obstructive jaundice, probably because of a decrease in production,[12] which may be associated with the anemia.[13] As jaundice progresses the "bile intoxication," as judged by the bile acid and pigment content of the blood, becomes less. It appears, then, that death from obstructive jaundice may not be due to the passage of bile into the circulation in toxic amounts. No one has injected bile continuously in small subacute toxic doses over long periods of time to observe the effect. But there are data bearing on the relative toxicity of bile intravenously, taking into consideration the time of injection and the daily output. Two grams of bile salt given in one minute to a 10 Kg. dog is generally lethal, but given throughout one hour does not prove fatal; but 4 Gm. in one hour is fatal.[14] These amounts are about one-half the normal twenty-four hour output.[15] Therefore, if injected slowly, the normal dog can eliminate one half of its total twenty-four hour output of bile salts within two hours.[6] The jaundiced dog also eliminates bile salts but not as rapidly as a normal dog, as might be expected.[16] The foregoing doses produce a concentration of bile acids in the blood of from three to five times that found at the highest point of blood bile acid following common duct obstruction. This suggests that bile salts may not accumulate in the blood in jaundice sufficiently to be toxic. Further, it cannot be said that the presence of a high bile acid level for several weeks leads to irreversible fatal toxic changes, since long standing obstruction, when relieved in the human being, results in a return to normal health. It is true that the injection of 5 cc. of sterile gallbladder bile per kilogram intraperitoneally causes a fatal peritonitis in dogs and rabbits (0.5 cc.).[17] But this is a large dose and the cytolytic action of bile on the peritoneum may set free toxic substances that act coincidentally with the absorbed bile salts.

The effect of an Eck fistula on jaundice is interesting and has a direct bearing on the question at hand.[18] The Eck fistula liver produces only about one-half the normal amount of bile, and when biliary obstruction is produced in such animals jaundice is very slight; or, if jaundice is present, an Eck fistula markedly relieves it and, according to Mathews,[18] prolongs the life of jaundiced animals. These data might be interpreted as showing that, the smaller the quantity of bile being formed, the less bile there is to overflow from the liver into the blood and to produce toxic effects. But it might also be interpreted as showing that, the smaller the quantity of bile being formed, the less the acute pressure and local toxic effects in the liver.

These observations strongly suggest that a patient in whom the liver is functionally deficient to begin with will withstand jaundice longer than one with a normal liver.

Liver Damage.—It is well known that anatomic liver damage occurs in obstructive jaundice. The pathologist speaks of "icteric necrosis,"[19] "biliary infarcts"[20] and biliary cirrhosis. These changes have been observed in various animals by Rous and Larimore[21] and by Snell, Greene and Rowntree.[9] The former investigators have pointed out that the liver changes following biliary obstruction are essentially the same as those which occur in glands in general when their excretory ducts are obstructed. Obviously, therefore, if the anatomic changes are sufficiently extensive, one should expect disturbances in liver function.

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[2] Horrall, O. H., and Carlson, A. J.: Am. J. Physiol. **85**: 591 (July) 1928.

[3] Still, E. U.: Am. J. Physiol. **88**: 729 (May) 1929.

[4] Meltzer and Salant. J. Exper. Med. **8**: 127, 1906.

[5] Bunting and Brown: J. Exper. Med. **14**: 445, 1911.

[6] Greene, C. H., and Snell, A. M.: J. Biol. Chem. **78**: 691 (Aug.) 1928.

[7] Stadelmann: Der Icterus, Stuttgart, 1891; Ztschr. f. Biol. **16**: 1, 1896.

[8] Cited by Stadelmann (footnote 7).

[9] Perlzweig, W. A., and Barron, E. G.: Proc. Soc. Exper. Biol. & Med. **24**: 233 (Dec.) 1926. Rosenthal, F., and Wislicki, L.: Arch f. exper. Path. u. Pharmakol. **117**: 8, 1926. Brakefield, J L., and Schmidt, C. L. A.: J. Biol. Chem. **67**: 523 (Feb.) 1926. Snell, A. M.; Greene, C. H., and Rowntree, L. G.: Diseases of Liver: Further Studies in Obstructive Jaundice, Arch. Int. Med. **40**: 471 (Oct.) 1927. Green and Snell (footnote 6).

[10] Weintraud, in von Noorden: Metabolism and Practical Medicine **2**. Chicago, 1907, p. 250.

[11] Weintraud: Arch. f. exper. Path. u. Pharmakol **34**: 371, 1894.

[12] McMaster, P. D.; Broun, G. O, and Rous, Peyton: J. Exper. Med. **37**: 395 (March) 1923. Drury, D. R, and Rous, Peyton. Ibid. **41**: 601 (May) 1925. Rous, Peyton; and Drury, D. R.: Ibid. **41**: 601 (May) 1925.

[13] Rous and Drury (footnote 12).

[14] Greene and Snell (footnote 6). Horrall and Carlson (footnote 2). Still (footnote 3).

[15] Whipple, G. H., and Smith, H. P.: J. Biol. Chem. **80**: 697 (Dec.) 1928

[16] Snell, Greene and Rowntree (footnote 9).

[17] Horrall, O. H.: Experimental Bile Peritonitis and Its Treatment in Dog, Arch. Int. Med. **43**: 114 (Jan.) 1929. Ivy: Unpublished observations Bunting and Brown (footnote 5).

[18] Mathews, S A: Am. J. Physiol. **29**: xxvii, 1912 Whipple, G H., and Hooper, C W. J. Exper Med. **17**: 593, 1913. Am. J. Physiol **43**: 290 (May) 1917; **42**: 544 (March) 1917 Voegtlin and Bernheim: J. Pharmacol & Exper. Therap. **2**: 455, 1910 1911.

[19] Eppinger Beitr z path Anat. u. z. Allg. Path. **31**: 230, 1902.

[20] Carnot and Hervier. Arch. de med. exper et d'anat. path **19**: 76, 1907.

[21] Rous, Peyton, and Larimore, L. D.: J. Exper. Med. **32**: 249 (Aug.) 1920.

As might be expected, the literature on disturbances of liver function due to obstructive jaundice is contradictory. Weintraud,[10] reviewing the older literature, stated that obstruction "to outflow of bile hinders the storing of glycogen in the liver." More recently, Snell, Greene and Rowntree[22] found the fasting blood sugar level to be normal but the fructose tolerance to be decreased. Weintraud[10] concluded that urea formation is rarely affected, but more recently it has been found in animals that the blood urea level falls to rise later because of a terminal renal insufficiency.[22] The retention of bromsulphalein has been found to be persistent throughout experimental jaundice,[10] as might be expected. Ascites is known to develop in prolonged jaundice in both man and dog.[23] These observations indicate that liver function in jaundice is disturbed; but a satisfactory answer awaits the discovery of a real liver function test.

The Lack of Bile in the Intestine.—Bile flow into the intestine seems to play an important if not a vital rôle. Dogs with complete biliary obstruction generally die in three months but occasionally survive six or seven months. Bile fistula dogs on a kitchen scrap diet generally survive only two months, but on a milk-carbohydrate diet they survive for from four to ten months and manifest marked abnormalities of the bone, purpura, anemia and pigment disturbances.[24] Whipple[24] reports that, if from 10 to 20 per cent of the bile flows into the intestine, health is normal. The same quantity of bile by mouth is beneficial but does not prevent a disturbance of nutrition. The constituent of bile that plays this important rôle is not known. By adding to the diet liver and bile[25] cod liver oil or ergosterol,[26] bile fistula dogs have been kept for more than a year. In man,[27] complete obstruction generally proves fatal in from four to six months, although there have been occasional instances of longer survival. Human beings with biliary fistula[28] apparently are less affected than are animals, some patients dying in ten months and others doing well for even a longer period of time. Proper dietary control is apparently a very important factor.

Bony disturbances, hemorrhages, disturbances of digestion and nutrition, decreased bile salt formation and anemia are phenomena common to both jaundice and lack of bile flow into the intestine.

It cannot be concluded, however, that the lack of flow of bile into the intestine is the cause of death in jaundice.

Terminal Nephritis.—Snell, Greene and Rowntree[22] observed in jaundiced dogs a terminal rise in blood urea due to renal insufficiency. Still and Carlson[23] also observed nephritis in their dogs. Horrall and Carlson,[2] following the injection of bile into the peritoneal cavity, observed an anuria which they explained as due to the fall in blood pressure associated with the intoxication. They further found that, on administration of sublethal doses of bile, albumin appeared in the urine for several weeks. Further evidence is required to ascertain what rôle a terminal nephritis plays in the cause of death in jaundice.

Summary.—I do not believe that the evidence at hand permits a positive statement as to the cause of death in jaundice. A summation of the foregoing factors is probably the cause, and one factor may predominate in one case and another factor in another case. The fact cannot be avoided that bile in adequate doses is lethal, but it is not known that the amount of bile that actually gets into the blood stream in jaundice will prove fatal. It is known that jaundice affects the liver, but it is not known that acute liver insufficiency occurs in jaundice. It is known that the absence of bile from the intestine leads to marked disturbances of nutrition and metabolism, but it is not certain that such changes per se will prove fatal. The patient suffering from prolonged jaundice presents a picture that results from the failure of a number of physiologic mechanisms.

THE HEART IN JAUNDICE

Much has been written concerning the bradycardia which is said to occur commonly, but not always, in the jaundiced patient. Some well known internists[29] have failed to observe it. According to Osler, it occurs only during the early stages of jaundice or only during the time at which there is accumulation of bile salts in the blood, which I believe is a significant observation. Windle[30] found bradycardia present in young people having catarrhal jaundice but not in the majority of cases with obstructive jaundice. Buchbinder[31] observed it in early obstructive jaundice in puppies but not in adult dogs. Apparently the "younger" the vagocardiac mechanism, the more sensitive it is to the early effects of jaundice, which is sufficient to explain the discrepancies in the literature.

Given a sensitive mechanism, what causes it to react? There is ample evidence showing that bile or bile salts in moderate doses increase vagal inhibitory tone and that atropine or vagus section abolishes the bradycardia.[32] (In larger doses the intracardiac ganglions and the cardiac muscle are injured.) This means that the causative factor is operating either on the vagus center or on the nerve endings. In jaundice, vagal tone can be increased either by reflexes caused by distention of the biliary passages[33] or by the increased bile salt level of the blood in early jaundice. In the marked cases of bradycardia, both mechanisms are probably operating. Another factor that must be kept in mind is the low calcium content of the heart reported by King, Bigelow and Pearce,[34] which is questioned by Buchbinder,[31] and the alleged decrease in "utilizable" blood calcium to be discussed later. Also Finsterer[35] and

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22. Snell, A. M.; Greene, C. H., and Rowntree, L. G.: Diseases of Liver: Comparative Study of Certain Tests for Hepatic Function in Experimental Obstructive Jaundice, Arch. Int. Med. **36:** 273 (Aug.) 1925.
23. Haberland, H. F. O.: Arch. f. klin. Chir. **135:** 248, 1925. Still, K. S., and Carlson, A. J.: Am. J. Physiol. **89:** 34 (June) 1929. Snell, Greene and Rowntree (footnote 9).
24. Whipple, G. H.: Physiol. Rev. **2:** 458 (July) 1922.
25. Wisner, F. P., and Whipple, G. H.: Am. J. Physiol. **60:** 119 (March) 1922. Smith, H. P.; Groth, A. H., and Whipple, J. H.: J. Biol. Chem. **80:** 659 (Dec.) 1928.
26. Seifert, E.: Beitr. z. klin. Chir. **136:** 496, 1926. Tammann: Ibid. **142:** 83, 1928.
27. Wangensteen, O. H.: *How Long May Man Live with* Obstructive Jaundice? J. A. M. A. **90:** 1683 (May 26) 1928.
28. Wangensteen, O. H.: Complete External Biliary Fistula, J. A. M. A. **93:** 1199 (Oct. 19) 1929.
29. Mackenzie, James: Diseases of the Heart, London, Oxford Medical Publications, 1921. Vaquez, Henri: Diseases of the Heart, trans. by G. F. Laidlow, Philadelphia, W. B. Saunders Company, 1924. McVicar, C. S., and Fitss, W. T.: Clinical Aspects of Jaundice, J. A. M. A. **89:** 2018 (Dec. 10) 1927.
30. Windle: Brit. M. J. **1:** 123, 1916.
31. Buchbinder, W. C.: Experimental Obstructive Jaundice: Age Factor in Production of Bradycardia, Arch. Int. Med. **42:** 743 (Nov.) 1928.
32. Rohrig: Arch. d. Heilk. **4:** 385, 1863. Horrall and Carlson (footnote 2). Buchbinder (footnote 31). Minkowski: Ergebn. d. Path. **2:** 709, 1895. Meltzer and Salant (footnote 4). Dumintresco-Mante: Presse méd. **37:** 34 (Jan. 9) 1929.
33. Buchbinder (footnote 31); Schrager, V. L., and Ivy, A. C.: Surg. *Gynec. Obst.* **47:** 1 (July) 1928.
34. King, J. H.; Bigelow, J. E.; and Pearce, Louise: *J. Exper. Med.* **14:** 159 (Aug.) 1911.
35. Finsterer: Deutsche. Ztschr. f. Chir. **118:** 1, 1913.

Ricciuti [36] report that liver injury may cause bradycardia.

The depression of blood pressure and the feeble pulse which occur after prolonged jaundice are explained by Horrall and Carlson [2] as being most probably due to malnutrition rather than to the toxic action of bile salts.

Table 1.—*Conclusion Reached by Various Investigators Relative to the Toxicity of the Constituents of Bile*

- Pigment more toxic than other constituents:
    - Bouchardt, cited by Stadelmann.
    - King and Stewart: J. Exper. Med. **11:** 673, 1909.
    - King, Bigelow and Pearce: J. Exper. Med. **14:** 159, 1911.
    - De Bruin, cited by Weintraud.
- Pigment slightly toxic:
    - Rywosch: Arb. d. Pharm. Inst. zu Dorpat. **2:** 102, 1888.
    - Gilbert and Herscher: Compt. rend. Soc. de biol. **59:** 208, 1906.
    - Ackeren, cited by Weintraud.
- Pigment nontoxic:
    - *Horrall and Carlson: Am. J. Physiol. **85:** 591, 1928.
    - *Still: Am. J. Physiol. **88:** 729, 1929.
- Bile salts toxic:
    - Rywosch: Arb. d. Pharm. Inst. zu Dorpat. **2:** 102, 1888.
    - Rohrig: Arch. d. Heilk. **4:** 385, 1863.
    - Traube: Berl. klin. Wchnschr. **9:** 85, 1864.
    - Stadelmann: Der Icterus, Stuttgart, 1891; Ztschr. f. Biol. **16:** 1, 1896.
    - De Bruin, cited by Weintraud.
    - Sellards: Arch. Int. Med. **4:** 502, 1909.
    - Weintraud: Arch. f. exper. Path. u. Pharmakol. **34:** 371, 1894.
    - Spalitta: Untersuche zur Naturlehre **14:** 144, 1894.
    - Biedl and Krause: Zentralb. f. inn. Med. **19:** 1185, 1898.
    - *Horrall and Carlson: Am. J. Physiol. **85:** 591, 1928.
    - *Still: Am. J. Physiol. **88:** 729, 1929.
- Cholesterol toxic:
    - Danilewsky: Arch. f. d. ges. Physiol. **120:** 181, 1907.
    - Flint: Am. J. M. Sc. **53:** 305, 1862.
- Cholesterol nontoxic:
    - Fasciani: Arch. Ital. de Biol. **63:** 136, 1905.
    - Rywosch: Arb. d. Pharm. Inst. zu Dorpat **2:** 102, 1888.
    - Feltz and Ritter, cited by Weintraud.
    - Horrall and Carlson: Am. J. Physiol. **85:** 591, 1928.

* *Used pure products in much of their work.*

BLOOD CLOTTING AND CALCIUM LEVEL

In spite of the skepticism that is occasionally expressed, it can be considered as established that in certain cases of obstructive jaundice there is a tendency to hemorrhage. The factors responsible for the variation from patient to patient are not known. The duration of the jaundice is reported to be a factor by Lee and Vincent.[37]

In spite of the large amount of serious work done, the cause of the tendency to hemorrhage in jaundice is not understood. It may be due either to some disturbance of the organic clotting elements or to a functional deficiency of calcium causing delayed coagulation or an "unfirm" clot, or to fragility and lack of contraction of the blood vessels. (Duke's bleeding time should be determined as well as the clotting time.) All the various clotting elements have been suspected as being at fault—thrombin formation and available thrombokinase,[38] fibrinogen [39] and fibrin formation.[40] The greatest amount of study has been devoted to blood calcium, since it is known to play an important rôle in clotting and since a disturbance of calcium metabolism is present in prolonged jaundice.

The summary of the literature shown in table 2 demonstrates that there is no agreement as to either the quantity or the quality of the blood calcium in jaundice. This lack of agreement may be due to defective technic or to unknown variable factors. The results of Buchbinder [31] show that age is an important factor, since puppies showed a definite decrease in serum calcium and disturbances of bony structure whereas little or no disturbance occurred in adult dogs. The most recent and careful work of Snell and Greene [41] shows that there is no correlation between total or diffusible serum calcium, bilirubin content and coagulation time in jaundiced animals and man. It is generally maintained without proof that diffusible calcium is more readily metabolized. But Snell and Greene find that calcium chloride can be given intravenously and the coagulation time reduced without affecting serum bilirubin, serum calcium and diffusible calcium. Vines [42] reports that ionized calcium is not necessary for clotting. Cantarow, Dodek and Gordon [43] state that parathyroid extract hastens coagulation in jaundice, but Zimmerman [44] was unable to detect any change, even though he observed an increase in the blood calcium. That there is some functional deficiency in calcium metabolism is indicated by the bony changes in jaundice,[31] by the greater tolerance of the jaundiced dog to intravenous calcium,[45] and by the decreased effectiveness of parathyroid extract in parathyroidectomized dogs with jaundice;[46] but it does not follow that delayed clotting is due to a functional deficiency of calcium even though an injection of calcium does hasten coagulation. The literature does not teach how calcium administration in jaundice hastens coagulation, which I know from personal observation it does in some cases. Nor is the cause of the disturbance of calcium metabolism known; but the literature explains it as due either to decreased absorption and increased elimi-

Table 2.—*Blood Calcium in Jaundice*

- Increase due to increased calcium mobilization and excretion:
    - King, Bigelow and Pearce: J. Exper. Med. **14:** 159, 1912.
    - King and Stewart: J. Exper. Med. **11:** 673, 1909.
- Decreased:
    - Halverson, Mohler and Bergeim: J. Biol. Chem. **32:** 171, 1917.
    - *Koechig: J. Lab. & Clin. Med. **9:** 679, 1923.
    - Kirk and King: J. Lab. & Clin. Med. **11:** 928, 1926.
    - Emerson: J. Lab. & Clin. Med. **14:** 122, 1928.
    - †Buchbinder and Kern: Arch. Int. Med. **41:** 754, 1928.
    - Pettibone: J. Lab. & Clin. Med. **3:** 275, 1918.
- No change:
    - Snell, Greene and Rowntree: Arch. Int. Med. **36:** 273, 1925.
    - Walters and Bowler: Surg. Gynec. Obst. **39:** 200, 1924.
    - Zimmerman: Klin. Wchnschr. **6:** 726, 1927.
    - †Buchbinder and Kern: Arch. Int. Med. **41:** 754, 1928.
    - Snell and Greene: Am. J. Physiol. **92:** 630, 1930.
    - Shattuck and Killian: Tr. Am. Gastro-Enterological A., Atlantic City, May, 1930.
- Functional deficiency:
    - King, Bigelow and Pearce: J. Exper. Med. **14:** 159, 1911.
    - Lee and Vincent: Arch. Int. Med. **16:** 59, 1915.
    - Walters: Surg. Gynec. Obst. **33:** 651, 1921.
    - Cantarow, Dodek and Gordon: Arch. Int. Med. **40:** 129, 1927.
    - Walters and Bowler: Surg. Gynec. Obst. **39:** 200, 1924.
- Decrease in diffusible form of calcium in blood:
    - Kirk and King: J. Lab. & Clin. Med. **11:** 928, 1926.
    - Emerson: J. Lab. & Clin. Med. **14:** 122, 1928.
    - Shattuck and Killian: Tr. Am. Gastro-Enterological A., Atlantic City, May, 1930.
- No change in diffusible calcium:
    - Snell and Greene: Am. J. Physiol. **92:** 630, 1930.

* Thought decrease to be due to defective method.

† Decreased calcium in puppies, no change in adult dogs. Reduction in three cases of human jaundice.

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36. Ricciuti, J.: Policlinico (sez. chir.) **34:** 229 (May) 1927.

37. Lee, R. I., and Vincent, Beth: The Relation of Calcium to the Delayed Coagulation of Blood in Obstructive Jaundice, Arch. Int. Med. **16:** 59 (July) 1915. Lee, R. I., and White, P. D.: Am. J. M. Sc. **145:** 495, 1913.

38. Morawitz and Bierich: Arch. f. exper. Path. u. Pharmakol. **56:** 115, 1907.

39. Snell, Greene and Rowntree (footnote 22). Kunika: Deutsche Ztschr. f. Chir. **118:** 574, 1912.

40. Haessler, H., and Stebbins, M. G.: J. Exper. Med. **29:** 445 (May) 1919.

41. Snell, A. M., and Greene, C. H.: Am. J. Physiol. **92:** 630 (April) 1930.

42. Vines, H. W. C.: J. Physiol. **55:** 86 (May), 287 (Aug.) 1921.

43. Cantarow, Abraham; Dodek, S. M., and Gordon, Burgess: Calcium Studies in Jaundice, Effect of Parathyroid Extract on Distribution of Calcium, Arch. Int. Med. **40:** 129 (Aug.) 1927.

44. Zimmerman, L. M.: Klin. Wchnschr. **6:** 726 (April 16) 1927; Am. J. M. Sc. **174:** 379 (Sept.) 1927.

45. Walters, Waltman; and Bowler, J. P.: Surg. Gynec. Obst. **39:** 200 (Aug.) 1924.

46. Buchbinder, W. C., and Kern, Ruth: Experimental Obstructive Jaundice, Modification of Parathyroid Tetany Mechanism in Jaundice, Arch. Int. Med. **41:** 754 (May) 1928.

nation or to a combination with bilirubin, or to the use of calcium as a "detoxifying" agent.

It should be pointed out that intravenous therapeutic doses of calcium rapidly disappear from the blood,[47] and the effect on coagulation may be transitory.[48] Overdoses must be avoided because of possible damage to the kidney and heart.[45]

SUMMARY

In obstructive jaundice there exist a number of failing physiologic mechanisms and it is not known which one is primarily concerned. The fundamental nature of the reactions involved in producing the physiologic disturbances is not completely understood at present. The literature indicates that a carbohydrate diet with milk and cod liver oil and calcium administration are worth while therapeutic procedures in this condition. The fact that the problem is being actively attacked by several groups of investigators augurs well for the future of the understanding of physiologic disturbances in jaundice.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. JUDD AND MARSHALL, PAYNE, BLANKENHORN AND IVY

Dr. F. C. Mann, Rochester, Minn.: Bile pigment is important to the clinician because it gives the sign of jaundice. To the physiologist it is the least important of the biliary constituents. So far as is known it is wholly an excretory product, a part of the hemoglobin molecule which cannot be used any more. It is known to be formed from the hemoglobin that is taken from the red blood cell. No other constituent of the blood from which it can arise is known. It is known that certain extrahepatic cells, which Aschoff calls the reticulo-endothelial cells, form it. It has never been proved that the polygonal cells form it. I would not mention the van den Bergh test except for its presentation by Dr. Blankenhorn, but I suggest that the van den Bergh test, direct and indirect, does mean something in regard to bile pigment. I shall cite one series of experiments that Dr. Bollmann and I have performed. In a dog of which the common bile duct is ligated and the gallbladder removed, bilirubinemia begins to develop and can be determined spectrophotometrically within fifteen minutes. After six or eight hours the plasma, which was colorless before operation, is yellow, gives a definite reaction, and is measurable by the van den Bergh test. If the liver is removed after bilirubinemia has developed, the curve of development of bilirubinemia does not change. As measured by the van den Bergh test or with the spectrophotometer there is a constant increase of bilirubin in the blood and removing the liver does not change the rate of its development, but the amount of bilirubin which responds to the direct method does not increase. In other words, all of the increased amount that is found after removal of the liver gives only the indirect reaction. This, to me, would imply rather conclusively that the liver does something to the bile pigment, even though most of it is not formed within it. For fear that I might be thought to be too much in disagreement with Dr. Blankenhorn concerning the van den Bergh test, I should also report the fact that there are some species of animals which never give a direct van den Bergh reaction, even though the bile is taken directly from the hepatic or common bile ducts.

Dr. Onis H. Horrall, Chicago: The cause, mechanism, significance and the physiologic and pathologic effects of jaundice have been investigated for many centuries, but not until the beginning of the nineteenth century have the particular substances in bile been investigated. Bilirubin has been accused as the offending substance, and accordingly the present classification of jaundice has been based on the bilirubin content of the blood, and the kind of bilirubin according to the van den Bergh test. Brulé and the French school have pointed out that bilirubin and bile salts vary in jaundice, and they speak of dissociated jaundice. Certainly the toxic symptoms in jaundice cannot all be attributed directly to bile or to its acids. Jaundice is a complex problem. Numerous systems are disarranged, as the digestive, the circulatory, the urinary, and even the nervous, either primarily or secondarily. Intravenous injections of bile have been compared with obstructive jaundice. But here little is known of the amount of bile acids in the blood stream, nor is it known how they act on the different cells. As recently shown, the bile pigments are not entirely of hepatic origin. May not the bile acids be the products of the metabolism of the body cells? Thus the study of the bile acid content of the blood and body tissues may give some clue to the actual pathologic condition. I believe that, as soon as a very sensitive specific test for toxic bile acids is discovered, it will be possible to classify jaundice on a more workable basis. The use of dehydrocholic acid, intravenous or by mouth, may modify the course of jaundice.

Dr. Joseph S. Diamond, New York: I wish to correct the impression Dr. Blankenhorn has given regarding the inability of differentiating the obstructive from other types of jaundice. The differential diagnosis between the hemolytic type and the others offers no difficulty. The condition, however, which concerns every one is to know, when one is faced with a case of jaundice, whether it is due to obstruction, requiring surgery, or to an hepatic disease, requiring merely medical attention. Dr. Blankenhorn was pessimistic about present knowledge and could not mention any clinical test to help in such differentiation. He spoke briefly of urobilinogen, from the physiologic standpoint. He has not stated, however, that the daily studies of the amount of urobilinogen in the urine in jaundice will quickly give information as to the type of jaundice one is dealing with. In the obstructive type no bile can enter the intestinal canal; therefore no urobilinogen will be found in the urine, because urobilinogen is a pigment derived from the bile, being oxidized in the large bowel. On the other hand, in the catarrhal or toxic jaundice there is no obstruction in the common duct. The old theory of a mucus plug in the common duct derived from an ascending gastroduodenitis has been proved pathologically incorrect. Toxic or catarrhal jaundice must be regarded as a disease of the liver itself, a parenchymatous change in the liver cells. There is no obstruction in the bile passages, and bile is found in the intestine. The urobilinogen formed is brought back to the liver and there the diseased liver, being unable to utilize it, shunts the urobilinogen into the general circulation, whence it is eliminated in the urine in large amounts. The increased output indicates the existence of toxic hepatitis. In other words, it is a medical type of jaundice which should be left alone. A test of value described by Wallace and Diamond consists of the addition of Ehrlich's aldehyde reagent to freshly voided urine. A red coloration is obtained, varying in intensity with the amount of urobilinogen present. Normally only minute traces are found. In obstructive jaundice none is found, while in catarrhal jaundice a deep, dark red develops. In a case of jaundice, the urine should be tested daily and if it is persistently negative for urobilinogen one may regard it as due to obstructive causes, requiring surgery, while in the catarrhal jaundice it will increase daily with the progress of the disease and is of good prognostic omen.

Dr. M. A. Blankenhorn, Cleveland: I am aware of Dr. Wallace's and Dr. Diamond's studies in urobilinogen in urine and feces and have applied them for a long time. I still am a bit pessimistic in regard to these tests. I have found frequently that if the test is applied during the obstructive period (and there is an obstructive period in catarrhal jaundice in which urobilinogen is wanting from the urine) there will be an error in diagnosis. If the test is applied next day when conditions have changed somewhat, one immediately switches to a different type of jaundice. The thing I would emphasize, lest I appear to be quibbling, is that the problem must be considered as kinetic and not static, and that frequent observations must be made during the course of the disease.

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[47] Walters and Bowler (footnote 45). Heubner and Rona: Biochem. Ztschr. 93: 187, 1919.

[48] Jansen: Klin. Wchnschr. 3: 17, 715, 1924.

THE MENACE OF MENTAL FACTORS IN BODILY DISEASES *

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Medical and surgical conditions are often imitated and exaggerated by mental causes. This circumstance constitutes a menace in diagnosis and treatment. Stevenson[1] recently found in a large medical clinic that 19 per cent of the patients who came to the gastro-intestinal specialist had severe emotional problems, and that in only one fourth of the cases were mental or emotional disturbances absent. In 16 per cent of the children brought to the pediatric clinic, emotional factors arising in the home were responsible for the disorders in the children.

A vast amount of evidence has accumulated to show that mental conflicts and emotional disturbances upset the normal physiologic functions of the vegetative or sympathetic system. This system, as is known, regulates secretion, circulation, digestion and respiration. If it is disturbed, functional disability takes place in the viscera associated with these functions, such as kidneys, heart and stomach. When this functional upset persists, in time it may become organic. Now, if such causal relationships between mental and bodily functions are borne in mind and dealt with as a matter of routine, along with toxic, infectious, metabolic and other causes of ill health, the menace of mental factors in medicine could be largely eliminated.

I am concerned in this discussion mainly with the bodily disturbances associated with the psychoneuroses —hysteria, neurasthenia and anxiety states. Similar pseudo-organic maladies are encountered also in the true insanities, especially when depression exists, and they generally involve the digestive tract. But the mental symptoms in these patients are usually so pronounced as to indicate without question the psychic origin of the symptoms and generally lead to early institutional care. Broadly speaking, the cases cited in this paper may all be regarded as arising on a background of hysteria, fabricated through both hereditary and environmental influences.

The first case I shall discuss presented offhand a clinical picture of change in the gallbladder which ordinarily would call for surgical intervention. But on further investigation it was found that the symptoms were entirely on a mental basis.

REPORT OF CASES

Case 1.—An Italian girl, aged 14, referred by her family physician because of his inability to discover any convincing evidence of gallbladder disease, presented the usual clinical symptoms of gallstone attacks. She had complained for six months of symptoms characteristic of cholelithiasis. There had been almost constant nausea and at times vomiting. Lately she complained of pain in the right hypochondrium, which during the past three weeks had occurred in paroxysms with nausea. Pain was increased by food. There was dizziness and headaches at times with the attacks of pain and nausea. Pain radiated to the back and right shoulder.

The symptoms continued to become more aggravated until finally operation was considered. In the hospital, however, a thorough examination again failed to reveal any evidence of diseased gallbladder. Roentgen and fluoroscopic examinations were negative. There was no rigidity over the abdomen; no jaundice; no clay-colored stools; no occult blood; the pulse was between 80 and 90. At this time there was a slight elevation of temperature for the first time during the illness.

The patient was a stout, healthy looking girl. She seemed anxious and fearful during the examination. Neurologic examination brought out no evidence of any organic nervous disease. Her manner and her overreaction to all reflex stimuli strongly suggested hysteria. The excessive anxiety of her mother, who hovered near by and vividly related her daughter's many symptoms, suggested plainly a neurotic background.

The case became intelligible in the light of the following mental and emotional factors:

The patient was the youngest of five children. Her bowels were badly constipated when she was an infant. At 15 months of age she had unconscious spells lasting from three to five minutes at a time. They occurred sometimes daily or again only once a week and were not accompanied by convulsive movements, or by any other signs of epilepsy. They continued until her fifth year. At her eleventh month, she would roll her head rhythmically from side to side for two or three days at a time. At 10 years her appendix was removed. It should be noted that the appendicitis was not acute. I was unable to learn whether the appendix was diseased in any way. She talked at 18 months and walked at 2 years. Her history was then uneventful until the present illness, which set in six months before I saw her.

Turning to the mother, I quickly discovered that a morbid emotional relationship existed between her and the daughter. The mother herself had suffered from gallstone attacks during the pregnancy with and since the birth of this youngest child. She was unusually devoted to the child and kept watch over her to an extraordinary degree. The two were always inseparable and when the child grew older she nursed the mother through many true attacks of gallstones. Operation cured the mother. Six months later the daughter settled into her own seeming gallbladder attacks.

Following the mother's convalescence from her operation, the girl began having discomfort in the lower left abdominal region, probably due to constipation and innocent except for the ready mental soil prepared by her intimate sympathetic life with her mother through the latter's gallbladder sufferings. Then the girl began having symptoms similar to those presented by the mother during her gallstone attacks. The distress shifted to the right side and a perfect duplicate of the mother's attacks was soon evolved. The mother gradually became convinced that the girl was affected as she had been. She had little difficulty in convincing the daughter that this was a fact. She decided that prenatal influence had destined the child to her own infirmity. She finally became obsessed with the idea that nothing but an operation would cure the girl, since operation had been her own salvation.

In the light of the foregoing data, the youth of the patient, and in the absence of physical and laboratory confirmation, the case was diagnosed as unquestionably one of major hysteria. The girl was identifying herself with the mother and had gradually taken on all of the mother's gallbladder symptoms.

In order to corroborate this diagnosis, complete isolation of the girl from the mother was carried out for two days, under great protest on the part of the mother. During these two days, the symptoms entirely disappeared. The mother took the girl home and all symptoms immediately reappeared. It was impossible to convince the mother that no operation was necessary and that the girl might be cured if the mother would consent to be separated from her. The continuance of the symptoms and the demands of the mother for operation finally brought about a laparotomy. A normal gallbladder was revealed. The girl has remained free from the gallbladder attacks for six months, certainly because of suggestions of cure she received following operation. However, she has complained almost continually after the first month, of abdominal distress At times, the complaints are acute and accompanied by slight rise in temperature. Her visits to a physician are as frequent as ever. She is likely to follow a course of chronic invalidism. Her neurosis has not and cannot (because of family) be dealt with. To it has no doubt been

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* Read before the Section on Nervous and Mental Diseases at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

[1] Stevenson, George: Why Patients Consult the Gastro-Enterologist, J. A. M. A. 94:333 (Feb.1) 1930. Emerson, Haven: The Magnitude of Nervous and Mental Diseases as a Public Health Problem, at the first international Congress for Mental Hygiene, Washington, D. C., May 6, 1930.

added some degree of organic disorder. She has been caught in a vicious circle whose weakest arc—the mental or neurotic—is least accessible to therapy.

Case 2.—*History.*—A woman, aged 48, was referred to me because of the sudden onset of violent occipital headache, dizziness and vomiting. These symptoms had come on suddenly on arising, the day before I saw her. She said the back of her neck felt as though she had been suddenly hit with a club. She had been referred because her symptoms suggested brain tumor or meningitic involvement.

The patient was well nourished. She held her head turned to the extreme left, with an expression of anxiety and pain. Examination was difficult because of nausea, which was increased on exertion, and because the patient declared that if she turned her head to the right, even to a slight degree, she was immediately beset by the most intense vertigo. She said, "The room immediately whirls to the left, and I quickly follow, turning in the same direction."

I found, however, that her pupillary reactions presented no anomalies, though the pupils were moderately dilated and reacted poorly to light, the left showing a better reaction. Ocular movements were good but there was a slight internal squint of the left eye, which had been present from childhood. The ocular disks were normal. There was no rigidity of the neck, no deafness, no adiadokokinesis. Laryngeal and pharyngeal innervation were normal. The right elbow jerk was a little more active than the left, both being somewhat plus. The knee jerks were normal. Babinski's sign was absent. The temperature was normal, the pulse 80. Sensation was normal; the blood and urine gave negative results to tests. The blood pressure was 147 systolic and 90 diastolic.

Because of the absence of physical or neurologic signs of any acute inflammatory condition, and the absence of any definite indication of organic intracranial disturbance, and because the patient's vomiting and vertigo were already less disturbing, an expectant plan was followed after administering hypnotics and reassuring the patient. This plan was further justified by the patient's reaction, which seemed to present an emotional element. This fact suggested a doubt as to the organic origin of her symptoms. She overreacted, and her expression of pain was not convincing as is that seen in true organic cases.

Spinal fluid and roentgen examinations were withheld, and when the patient's history came to light, it gave further justification for following a waiting plan of treatment. She grew better rapidly. She was eating comfortably twenty-four hours after admission to the hospital. She had to be very careful about moving her head because of the vertigo, but this also gradually disappeared and she could move about the room freely at the end of ten days. At the end of four weeks she went home entirely free from all symptoms and has remained so now for eight months.

Emotional Background.—At the age of 15, this patient "lost her eyesight." Regular physicians had failed to cure her, but her sight had been restored after a few visits to an osteopath. She had married happily at 21, longed for children and had had great disappointment when her first child died at the end of nine days. A second child, born a year later, lived but was mentally defective, having to be placed in an institution for the feebleminded. She said this experience was the "worst of her life." She had seemed, however, to readjust herself fairly well. Her home was pleasant; she had many friends and a devoted, tactful husband. Her continued yearning for children was rewarded after sixteen years by the arrival of a boy, now 6 years of age. Her solicitude and affection for this last child was of course intensified by the memory of her previous sad experiences with children.

When I inquired about events immediately preceding the present illness, I found that six months earlier she had fallen, striking the lower end of her spine, which had "upset her nerves for several weeks." Following this, an automobile trip through Yellowstone Park left her pretty well exhausted on returning home.

Then her boy started to school and it was noticed that she became unusually active. She said she could no longer sit at home quietly as she used to. She missed the boy. She took on numerous social and church interests (compensatory activities). Two months before her present illness, it was decided that the boy's tonsils should be removed. She became extremely anxious. She could not keep the thought of the possibility of losing him out of her mind. The day for operation was set and the mother's anxiety increased. It is important to bear in mind the patient's emotional state at this time, and particularly the details of the next scene, as this appears to have determined the clinical symptoms she later imitated.

She was allowed to see the boy in his room immediately on his return from the operation. He was still under the anesthetic. His head was turned to the left over a sputum pan because of his nausea, vomiting and bleeding. (The mother's symptoms on admission: head turned to left; vomiting.) She "felt sure he was going to die." Ten days later, she had a spell of nausea and at this time received news of the death of a very dear friend. At the funeral she was again nauseated. The evening of this funeral a large celebration for her silver anniversary took place. She had to be excused from the festivities because of nausea and vomiting. The next day, one of the friends who had attended the celebration died. This event caused still further shock. From that time until the acute onset of her present symptoms, she was restless, anxious and nauseated with slight vertigo at times. This period represents the preliminary or incubation time of the neurosis, though preceding events prepared the soil for the final break.

Time will not allow a detailed analysis of the relationship of the patient's later acute illness with the incidents just cited. They centered around her 6 year old boy and his operation. The entire and rapid disappearance of all her symptoms left no doubt, however, that they were emotional or psychogenic in origin. She passed into her psychoneurosis at the time of the boy's operation. The death of two friends while she was still in this emotional state aggravated her neurosis and it finally fashioned itself definitely after the image of her child with his head turned to the extreme left, vomiting—the picture presented by the patient on admission to the hospital. In such cases of overwhelming sympathy and emotion, a person may identify himself with another's suffering and may imitate all the evidences of such distress. In this case, the vicarious suffering occurred in an exaggerated degree.

The patient was rendered especially vulnerable by the chain of circumstances both preceding her son's operation and immediately following it. She had been extremely anxious as to the outcome of the operation and had been subjected to the shock incident to the deaths of two close friends. The vertigo was an exaggeration of slight vertigo experienced with the mild vomiting attacks that had occurred previous to the serious acute symptoms.

The case is intelligible in the light of such causative factors and is to be classified as an anxiety psychoneurosis with the passing over of psychic impressions into bodily manifestations—the so-called hysteria conversion phenomenon.

That this patient was predisposed to react in an hysterical fashion to overwhelming circumstances was indicated in the fact of her lost eyesight at the age of 15, restored by a few osteopathic treatments. She represents an extreme instance of how bodily symptoms of serious disease conditions can be taken on, or initiated through purely emotional causes. In this instance, the symptoms imitated those of an acute inflammatory meningeal irritation or brain tumor.

Case 3, in contrast to the previous two in which surgical problems seemed to the fore, presented symptoms apparently indicating medical therapy.

Case 3.—A woman, aged 40, had been bedridden for twenty years. I first saw her ten years ago. Her physician described her then as having neuritis and as addicted to opiates.

She had been an invalid since the death of her mother when she herself was 18 years of age. She was the eldest of four children, there being a sister and two brothers. The family was remarkable for the devotion that existed among its members. The father had died some years previously and this had served to increase the affection and mutual dependence of the surviving members on one another.

When the mother died, after a period of invalidism, the children displayed an unusual degree of grief. The patient whom I was asked to see seemed inconsolable. She made incessant visits to the mother's grave. She did not sleep and ceased to take part in the household affairs. Finally she began to complain of digestive disturbances and, six weeks after her mother's death, took to her bed. There she remained until the time of her death, twenty years later. It was about midway in this bedridden invalidism that I first saw the patient.

Her complaints at first centered about her digestion. Nausea appeared and occasional vomiting. She became emaciated and complained of weakness. Her sister became her constant companion and nurse. The greatest concern was shown over her complaints and symptoms; her illness became the paramount interest of the family. The pathetic story of this attractive young woman's invalidism gradually captured the sympathy of a wide circle of relatives and friends. Her home became a sort of shrine. Church societies and women's organizations to which she had belonged vied with one another in expressions of sympathy on all anniversary and holiday occasions.

At the time of my first examination, the girl was greatly emaciated. Her ten years' illness with all its elaborations had become a neighborhood institution. She kept her eyes closed most of the time during my early visits, appearing to have a marked photophobia. At times, however, I discovered her taking furtive glimpses of my actions when she thought I was not observing her. My visits had continued for several years before her eyes would meet my own squarely, and then but for a moment. Her conversation was usually rambling and at times incoherent, but during the later years of her illness she talked more freely, frankly, and often very intelligently. I was told that the patient had the most intimate knowledge of every detail concerning the affairs of each member of the household and her advice was sought by the family on all undertakings.

Her physician told me that suppositories of opium had already been administered rectally for several years. The dosage had gradually increased until about 5 grains (0.3 Gm.) of opium was being used daily. The narcotic had been begun following the earlier appearance of cramps in the abdomen. Severe neuralgic pains about the shoulders and chest seemed to necessitate increase of the drug. Gradually a swelling appeared in the right iliac region and constipation slowly reached the stage at which movements occurred only at intervals of between two and three weeks. The tense tympanitic tumor in the right iliac quadrant seemed to be a loop of bowel. The patient's reflexes were normal. There was no elevation of temperature. Her condition prohibited any thought of operation for the mass in the abdomen. Only few and specially prepared articles of food were taken, with frequent regurgitations.

During the ten years of my visits to this patient, the general set-up remained much the same. The invalid always detailed a pathetic story of misery and pain. If I came on her unawares, I often found her the center of a family gathering, apparently much interested. Her whole expression would change instantly on discovering my presence. Morphine by rectum was substituted for the suppositories. Her emaciation finally became extreme, circulation gradually failed, and she passed into a stupor and died from extreme exhaustion.

The patient was cared for throughout her illness by a devoted sister, whose life was sacrificed to the invalid in this mission. She strongly resented any suggestion that the patient might ever have assisted herself. Much of the family income was secretly expended in foolish "cures." The sister was in a critical state of depression for many months following the invalid's death and a brother did not resume work for two years after the funeral.

This case, though medical involvements appeared during the course, was primarily, and essentially throughout, one of major hysteria. The girl had been perfectly healthy previous to her mother's death. She had been reared in surroundings of excessive patriarchal family devotion and had never been allowed to develop anything beyond a childhood capacity for meeting life. She was entirely incapable of adjusting herself to the new situation occasioned by her mother's death. Her inadequacy soon transferred itself into physical invalidism and all her energies were transformed into the morbid self-centered hypochondriac state into which she settled, and from which she finally died after a slow bodily and mental decay of twenty years' duration.

SUMMARY

The cases cited represent somewhat extreme instances of the extent to which apparent surgical and medical syndromes may mask the real disease, where mental factors become converted into bodily expression.

Less pronounced conditions of invalidism and organic disturbance are frequently brought about wholly, or are exaggerated, by mental or emotional maladjustments.

Consideration of the mental situation in no way, either by inference or in fact, presupposes any slighting of the organic agencies of disease.

Evaluation of mental factors necessitates study of the emotional life of the individual, knowledge of the family setting and, at times, a readjustment of environment and domestic relations.

In "frozen" cases such as 1 and 3, "cracking up" the deadlock is well nigh impossible. Early detection of the morbid process, with firm and tactfully applied measures, will alone arrest the morbid infection.

Though in certain instances, as in case 2, it is conceded that a degree of organic change may be present, its relationship to the exaggerated symptoms could, at most, only be that of partly determining the sympathetic pathway to be followed by the neurosis.

121 University Place.

ABSTRACT OF DISCUSSION

Dr. Albert M. Barrett, Ann Arbor, Mich.: Dr. Wholey has directed attention to problems which in their nature have been most difficult to deal with, not only in diagnosis but also in practice. These difficulties lie in the complex interactions of psychic and physical factors, both in health and in disease, and the fact that psychogenic mechanisms can produce manifestations in the somatic or physical field closely resembling the symptoms of organic disorders commonly encountered in practice. The rigid lines of separation between what is organic or physical and what is functional or psychic are becoming less distinct in problems of physiology and clinical pathology, and concern is now found with the better formulation of how much is physical and how much is psychic. The lack of recognition of this interaction has often led to serious errors of diagnosis and treatment, which have occurred in all fields of medical practice. In a recent review of the past histories of 100 patients diagnosed in the Psychiatric Clinic, Ann Arbor, as psychoneurotic, it was found that 47 of these had previously undergone various surgical operations; 12 had appendectomies, 13 had some form of pelvic operation, and in 17 tonsillectomy had been performed. It would seem somewhat disproportionate that 47 of 100 patients whose fundamental disorder was psychic should have required such an amount of surgical treatment. This is further emphasized in the ineffectiveness of the operations on the illness or symptoms of the patients. But the problem of psychic causation and influences in diseases is far wider than the field of the psychoneuroses. How far reaching interrelations of psychic and physical are is revealed in recent knowledge gained in the field of constitutional pathology. It has been shown that certain types of psyche as manifested in the temperament are related to certain specific types of body formation. Cyclothymic temperaments seem to occur predominantly in those of pyknic type of body, and schizothymic temperaments are most frequently seen in those of asthenic type. There is also much evidence that certain somatic diseases tend to occur with greater frequency in certain specific types of somatic constitution and temperaments.

Dr. Meyer Solomon, Chicago: I wonder whether it wouldn't be better instead of speaking of "organic" and "nonorganic" or "functional" disorders to speak of "pathologic organic lesions" and "physiologic organic disturbances" of psychogenic origin. In emotion the bodily organs are shaken up and this shaking up is accompanied by chemical and metabolic disturbances and, no doubt, transient organic changes. Hence there are really physical organic changes but not of a permanent structural nature. Such a differentiation will be helpful and will make clear why loss of weight and many other things may occur in conditions of psychogenic origin. Often the general practitioner thinks that psychiatrists consider these bodily disturbances as being imaginary, which they do not. Though of psychogenic origin, their nature is physically organic. One thing that should be stressed in these cases is that what has happened to the patient often is that the emotional conflicts he has had (which he has either forgotten about or, if he remembers, he doesn't see in relationship to his present condition), and the fear, the anxiety, the general emotional upset were originally centered about some personal problems and later were transferred to the nervous, mental and bodily symptoms that he feels, and the fear therefore becomes firmly attached to his bodily, nervous and mental condition. It is well in handling such patients to point out to them in a definite way exactly what has happened. Dr. Wholey has stressed that in many of these cases there exist almost unsolvable personal and home situations, and no matter how cheerful and optimistic one may be in handling them, often they are really unsolvable. If the psychiatrist cannot acquire such a psychologic hold on the patient that his control is greater than the control of the member or members of the family under whose influence the patient may be, he is going to lose the fight.

Dr. Harry Stack Sullivan, Towson, Md.: I have made a research investigation of 260 patients suffering schizophrenic illnesses. In 70 per cent the presenting symptoms of illness were of a nature that brought the patient to the attention of a physician for something other than mental disorder. I have reached the conclusion that a considerable portion of preschizophrenic and actually psychotic youths might be saved from grave disorder and deterioration if the fact could be conveyed to the general practitioner and to the specialists in the fields that I have mentioned that this grave mental disorder frequently presents itself as fairly well disguised symptoms of various physical illnesses, treatment of which as such facilitates the destruction of the patient's self-confidence and the development of the grave disorder. Neurologists and psychiatrists have a great duty in educating the medical man to the importance of symptomatologic camouflage. This should be one of our principal activities as psychiatrists, on the one hand in influencing medical education, and, on the other, in dealing with all physicians who counsel with us and who are present as audience in joint meetings.

Dr. Cornelius C. Wholey, Pittsburgh: This sort of paper was presented in the hope that it might reach the general ranks of the profession. I shall not attempt to take up in detail the points that have been brought out. The discussion, however, has emphasized the fact that the understanding of these cases is not sufficiently disseminated among general practitioners. I am satisfied that this can be partly explained by the serious defect generally existing in medical education. Many medical schools do not emphasize the importance of mental factors in disease either sufficiently or early enough in the course. A discussion of the psychic factors in disease processes should be begun at the same time as discussion of disease processes from toxic and infectious and other causes. It is just as essential. It plays an equally important rôle. Unfortunately, it is often left to the end of the course and then deals principally with the less important advanced insanities, neglecting the more important psychoneuroses. This emphasis on the insanities misleads and discourages the student. It gives him the impression that all mental ills are hopeless, since he does not have the opportunity of dealing with the large group of curable cases, cases that arise from hysterical and psychogenic factors. Nor is he usually taught to appreciate the mental element frequently present in medical and surgical cases. It is regrettable that some members of medical staffs still look on the course in psychiatry as a thing that has to be tolerated, seeming to have little appreciation of the vital import of psychiatry in general medicine.

HYPOTHYROIDISM *

LOUIS M. WARFIELD, M.D.
MILWAUKEE

It has been only within recent years that the mild states of hypothyroidism have received any attention. The most recent textbooks on diseases of the thyroid gland still devote considerable space to cretinism and myxedema but say very little, or do not mention at all, the group of cases which present symptoms which appear to be associated with lessened thyroid secretion but which never reach the stage of myxedema. That there is such a group of cases is attested to by articles now appearing in the literature from widely separated parts of this country. Kocher in 1904 was the first to call attention to this group as a possibility, but only since the development of clinical metabolimetry has it been possible to recognize the condition with any degree of accuracy.

The thyroid gland, unlike the pancreas or the suprarenal glands, is not absolutely necessary to maintain life. "It is not essential to thermostasis; nor is it essential to metabolic acceleration. Epinephrine exerts its calorigenic action even in the thyroidless animal."[1] Yet it is one of the most important of the endocrine glands as it is admitted to be largely the activator of all the body cells. Von Noorden has said, "The thyroid acts on oxidation as a pair of bellows rejuvenates a fire." De Quervain[2] gives four principal functions to the thyroid gland based on clinical experience and physiologic experiments: (1) control and stimulation of tissue growth in general; (2) control and stimulation of the functional processes of tissues; (3) neutralization of toxic substances produced in the normal metabolism of the tissues, and (4) assistance in the defensive action of the organism against bacterial toxins.

The majority of authors will agree to these four functions although not all are yet experimentally proved. The difficulty in assigning to certain more or less abnormal body states an endocrine etiology is notoriously fraught with pitfalls. There has been too loose reasoning from hypothetic and insufficient premises. The fact that there are undoubted cases of hypofunction of the thyroid, pancreas, suprarenal and pituitary glands should not lead one to assign too much of human woe to the endocrine glands.

Enough surveys of school children and college men and women have been carried out within the last few years to leave no doubt that there are definite goiter districts in this country; that is to say, districts where from 70 to 85 per cent of the young girls and women and 20 to 30 per cent of the young boys and men have simple goiter. Among these districts the Great Lakes basin rates high. Not only do human beings but all the species of animals as well as many species of fish have goiter. The soil is poor in iodine, the drinking water has only a trace. The story of the prophylaxis of goiter by the use of iodized table salt is well known. Goiter, then, is endemic in this region. Years ago Hector Mackenzie said that in any endemic goiter district the population would eventually show signs of more or less thyroid failure. Here in the Great Lakes basin we are seeing the third and fourth generations

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* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

[1] Means, J. H., and Richardson, E. P.: Oxford Monographs on Diagnosis and Treatment, New York, Oxford University Press 4, 1929.

[2] De Quervain, Fritz: Goiter and Thyroid Diseases, New York, William Wood & Co., 1924, p. 184.

of the pioneers who came from the Eastern Seaboard, from Germany, Norway and Sweden, districts where goiter is rare. The settlers found a soil without iodine. The first generation obtained iodine from the mothers but owing to the lack of iodine in food and drink the mothers of each succeeding generation could not replenish their store in the thyroid gland and their daughters and granddaughters had less and less. Now we see not only endemic goiter but mild or moderately severe states of thyroid failure which have not yet reached the stage of cretinism as in some of the Swiss cantons. Now that the value of iodine in the prophylaxis of adolescent goiter is known and the obstetricians are giving pregnant women iodine, it is probable that future generations will not have the mild states of hypothyroidism seen today in such relatively large numbers.

I wish to emphasize that these cases are common and until rather recently have gone unrecognized, usually being put in the neurasthenic group or in the vague group known as a "run down condition."

All textbooks, including the recent monograph by Means and Richardson,[1] divide hypothyroidism into cretinism (sporadic or endemic), myxedema, and operative myxedema (Kocher's cachexia strumipriva). To this grouping of hypothyroid cases should be added masked or latent hypothyroidism, a condition in which certain symptoms are found, certain laboratory tests are found and the basal metabolic rate is low but in which there are none of the classic signs of myxedema.

ETIOLOGY

One must include in the etiologic factors the operation for subtotal thyroidectomy. Too frequently patients are operated on and are not observed subsequently. The operation is supposed to cure them and nothing to the contrary is said to them. Injuries to the thyroid gland in the course of infectious diseases have been considered a cause. Kocher called attention to mild states of hypothyroidism following severe general infections, typhoid, influenza, dysentery, furunculosis. De Quervain[2] states that "the slighter forms of hypothyroidism occur in patients whose glands have been damaged by an inflammatory affection or by endemic goiter." The latter cause would appear to be the most important one in a goiter region. Tuberculosis and syphilis are not causative factors. In women the period of onset of menstruation and again the cessation of menstruation seem important factors in etiology.

Ninety-five per cent of my patients were born in states bordering on the Great Lakes and had lived most of their lives in this region. Five per cent were born abroad or in states east of the Blue Ridge Mountains but had lived in this region since infancy or early childhood. Although this does not prove the influence of locality, it is interesting. Undoubtedly thousands of persons with slight degrees of thyroid failure are daily carrying on their work and pass as normal. It is not the degree of thyroid failure alone measured by the basal metabolic rate which bring on symptoms. There evidently is some unknown constitutional factor which is also operative.

SYMPTOMATOLOGY

One might say at the outset that there is no definite group of symptoms which characterizes the mild hypothyroidism cases. The neurasthenic syndrome comes nearest to it but that only shows how bizarre is the symptomatology. These people are not really ill; they are below par. They do not feel as well as they know they should. Many are teachers or executives who hold responsible positions, who are active and energetic but who feel conscious that they have to drive themselves to their tasks, and they tire out easily. A rest often makes them feel quite well again, but as soon as they are back at work the same weariness comes over them, especially at the end of the day's work. It seems as if there were no reserve on which the patient can call. His activities use up his store of energy and leave him nothing on which he can fall back. This sense of fatigue is one of the most constant and characteristic symptoms.

Constipation, a sluggishness of peristalsis, is the next most common symptom in my series. Deusch[3] has shown that thyroid extract acts on strips of intestinal muscle to improve the tonus and to lower the threshold of stimulus response. The constipation is a lack of tone, not any actual pathologic lesion. This symptom has been noted by all authors. Brown[4] has called particular attention to it in women over 40 who have a lowered basal rate.

Headache is common. At times it is of a distinctly migrainous character. Lawrence and Rowe[5] have reported such cases in which the diagnosis of migraine had been made over a period of several years. None of my cases were of this type but fifteen patients gave headache as the most important symptom, the pain usually being on top and moving toward the occiput.

Rheumatic aches and pains were complained of in a few cases. These were cases now prone to be labeled "focal infection."

Vague abdominal pains often diagnosed as chronic appendicitis are also complained of as the prominent symptom. This is important to bear in mind. Too many people are rushed into hospitals and have had unoffending appendixes removed. Needless to say, they are often worse after the operation. The pain is still there and confidence in doctors has been shaken.

Menstrual disturbances in women are not as frequent as one might think. There were five of my patients who were irregular, six who had scanty flow and six who had increased flow. Salzman,[6] in the period before clinical metabolimetry, reported cases of uterine hemorrhage in which a normal condition was restored by the feeding of thyroid extract.

The weight is exceedingly interesting. All descriptions of hypothyroidism (which is always a synonym for true myxedema) in textbooks call attention to gain in weight. This conception needs revision. Lawrence[7] has already specifically called attention to the underweight (not starved) hypothyroid. I can confirm his observation. In this series of 88 patients, 22 definitely complained of or were found to be underweight, 21 had gained in weight, and 45 did not vary more than any normal person would. The overweight patients complain that however little they eat they gain, the underweight patients complain that although they stuff themselves they cannot increase their weight.

Beck[8] reports cases of nycturia, pollakiuria, dysuria, oliguria and incontinence due to thyroid failure. In the urine were pus and squamous cells. Endothelial cells were shed prematurely. He considers that the lack of thyroid secretion is responsible for the urinary disturbances and for the shedding of the epithelium of the kidney tract.

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[3] Deusch, G.: Deutsches Arch. f. klin. Med. **142:** 1-31 (March) 1923.

[4] Brown, T. R.: Tr. A. Am. Phys. **41:** 162, 1926.

[5] Lawrence, C. H., and Rowe, A. W.: Endocrinology **12:** 377 (July-Aug.) 1928.

[6] Salzman, S.: Am. J. Obst. **74:** 812 (Nov.) 1916.

[7] Lawrence, C. H.: Boston M. & S. J. **190:** 307 (Feb. 21) 1924.

[8] Beck, H. G.: Endocrinology **11:** 438 (Sept.-Oct.) 1927.

Lee[9] has found cases of vasomotor rhinitis of months' duration in young adults in whom nothing abnormal was found but a low basal metabolic rate. Complete relief was obtained by the feeding of thyroid extract. This is a small group but is actually existent.

The classic symptoms of the textbooks, such as thick skin, dry hair, dry skin, susceptibility to cold, scanty eyebrows and pads of fat above the clavicles, are conspicuous by their absence. Occasionally, if asked a direct question, some patients will admit susceptibility to cold.

Physical Signs.—There are no physical signs characteristic of this group of mild hypothyroid cases.

No particular size or weight or body figure is found. The thyroid gland may or may not be visible or palpable.

The pulse rate and blood pressure vary as they do in any group of people. Occasionally one finds a rapid rate, from 90 to 110. This is noted in the literature by Higgins,[10] Lawrence[11] and others.

The lowest blood pressure among my cases was 90 systolic and 70 diastolic in a woman, aged 40, whose pulse rate was 64, whose basal metabolic rate was minus 30 per cent and whose lymphocytes were 20 per cent. The highest blood pressure was 190 systolic and 94 diastolic, the pulse rate 100, in a woman, aged 61, with a basal metabolic rate of minus 16 per cent.

The blood does not show constant changes. Kocher's original differential point, a relative lymphocytosis, is not invariably present but more than 30 per cent of large and small lymphocytes were found in one half of my cases. Occasionally chlorotic types of anemia,[12] and even pernicious-like[13] blood pictures, have been reported. Simple anemia is not infrequent.

The basal metabolism rates[14] in the series ranged from minus 11 to minus 32 per cent. Criticism might be directed against considering as hypothyroidism a figure so close to the so-called normal as minus 11 per cent. While the standard usually given for normal is ± 10 per cent, the ease with which an increased basal rate may be obtained, and the practical impossibility under test conditions of decreasing the rate, makes a consistent minus 10 per cent with symptoms significant for the diagnosis of hypothyroidism.

I do not wish to leave the impression that every patient who is found in the course of an examination to have a lowered basal metabolic rate is suffering from thyroid or any other endocrine gland failure. Many perfectly well persons are found to have a rate of minus 10 or lower. These may be mild posterior pituitary failures (Cushing[15] believes that there are many such persons in the population), mild ovarian failures or mild suprarenal failures or perfectly normal persons. Slightly lowered basal metabolic rates may be without any significance. The point to be stressed is that in a patient with certain indefinite symptoms, of which easy fatigability is the chief one, with no other cause after careful search and with a lowered basal metabolic rate, thyroid failure is to be seriously considered. If the problem is approached from this angle, a differential diagnosis being made in every case, then by therapy and careful observation it can be determined whether the diagnosis is correct or not.

Usually patients with hypothyroidism have had symptoms for many months, even years. It is not always easy to fix the time of the onset of symptoms. In a series of cases which Lawrence[7] reported, the average length of time of symptoms was eight years. The longest interval in my series was twelve years, the onset dating from an attack of measles followed by scarlet fever.

Blood Sugar.—One finds in the literature the statement that there is hypoglycemia in hypothyroidism. Janney and Isaacson[16] say that all hypofunction of the endocrine glands, of which the thyroid is an example, are accompanied by hypoglycemia. Geyelin[17] has reported very low blood sugar values in two cases of myxedema, 53 and 68 mg. per hundred cubic centimeters. Janney and Isaacson's cretin showed 65 and 70 mg. They also showed that within two weeks after thyroidectomy on dogs there was hypoglycemia and a prolonged sugar curve (increased tolerance). However, cases of untreated myxedema are reported in which there was mild glycosuria.

Lawrence and Rowe,[5] in their studies of cases of hypothyroidism (not myxedema), say that there is a slight hypoglycemic tendency in thyroid failure. If 110 mg. per hundred cubic centimeters is accepted as the upper level of venous blood sugar, then about one half of my cases in which blood sugar estimations were done show higher values. No case showed hypoglycemia. Although the number of my cases is not great, still the figures apparently show that in the type of thyroid failure dealt with in this paper hypoglycemia is not present.

DIFFERENTIAL DIAGNOSIS

It is often difficult but highly important to make an accurate diagnosis. It does not seem that it is necessary to go to the extreme in laboratory examinations that Lawrence and Rowe have done. It is doubtful whether one could persuade the average private patient to subject himself to such a variety of tests, especially when he found out what the cost probably would be. Physicians who are subsidized in large endowed clinics can carry on extensive and expensive studies on a limited number of patients. The information obtained is valuable and serves to further knowledge; but it is not practical to carry on elaborate investigations in the study of cases coming to private physicians in all parts of the land.

The most important single test in the differentiation of the hypothyroid group from other endocrine gland failures is the determination of the basal metabolic rate. Much has been said of the difficulties and fallacies of this test, to all of which I agree. *The fact remains, however, that no diagnosis of hypothyroidism can be made unless there is demonstrated a lowered basal metabolic rate.*

Lowered basal metabolic rates are found in pituitary failure, in ovarian failure and in suprarenal gland failure. Benedict says that inadequate protein intake will lower the basal rate independently of the remainder of the diet.

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[9] Lee, R. I.: M. Clinics N. America **8**: 1705 (May) 1925.

[10] Higgins, W. H.: Incipient Hypothyroidism: Clinical Study, J. A. M. A. **85**: 1015 (Oct. 3) 1925.

[11] Lawrence, C. H.: Endocrinology **11**: 321 (July-Aug.) 1927.

[12] Warfield, L. M., and Greene, I. W.: J. Michigan M. Soc. **24**: 79 (Feb.) 1925.

[13] Stone, C. T.: Ann. Int. Med. **2**: 215 (Aug.) 1928.

[14] The Benedict-Roth machine with graphic attachment was exclusively employed and most meticulous care exercised to obtain accurate readings.

[15] Davidoff, L. M., and Cushing, Harvey: Studies in Acromegaly: VI. The Disturbances of Carbohydrate Metabolism, Arch. Int. Med. **39**: 751 (June) 1927.

[16] Janney, N. W., and Isaacson, V. I.: The Blood Sugar in Thyroid and Other Endocrine Diseases, Arch. Int. Med. **22**: 160 (Aug. 15) 1918.

[17] Geyelin, H. R.: The Carbohydrate Metabolism in Hypothyroidism as Determined by Examination of Blood and Urine, Arch. Int. Med. **16**: 975 (Dec.) 1915.

Patients with pituitary failure have been shown to have a rather characteristic distribution of fat over the body. This is found on physical examination. Ovarian failure is so intimately associated with both pituitary and thyroid failure that it should cause no great difficulty in diagnosis. Careful thyroid feeding under rigid observation is of help in differentiation if doubt exists in the mind of the physician.

The important and most difficult differentiation is that between hypothyroidism and hyposuprarenalism. The metabolic rate in both is low, but the latter is never as low as the extreme figure obtained in the former.

Koehler's[18] average basal metabolic rate for 288 cases of hypothyroidism was — 26 per cent, for 63 cases of hyposuprarenalism — 17 per cent. He says that because of autonomic instability it was difficult to obtain accurate rates in the hyposuprarenal cases. He publishes charts showing the regular respiratory excursions of the hypothyroid contrasted with the very irregular excursions of the hyposuprarenal case. In a review of my cases, with this point in mind, I could not confirm his observations. Possibly there were no instances of hyposuprarenalism among my cases. He thinks that hyposuprarenalism may exist with a normal or even slightly elevated basal metabolic rate. I feel that there can be no hypothyroidism without a lowered basal rate.

In my experience the most common disease that has to be differentiated from mild hypothyroidism is occult tuberculosis. Unless there is malnutrition, the normal basal metabolic rate in tuberculosis and the presence of a very positive intradermal old tuberculin test are helpful differential points. One cannot make a diagnosis of hypothyroidism unless there is a lowered basal metabolic rate.

A sense of ill being is so common in the onset of many chronic diseases that only careful analysis of all the data obtained will prevent errors in diagnosis.

TREATMENT

If the diagnosis is correct, the treatment is specific. Either thyroid extract or dessicated gland can be used. There seems to be no valid reason for giving thyroxin, which has to be administered hypodermically or intravenously when administration of the gland substance by mouth will produce the desired result. The dose varies to some extent with the depression of the metabolic rate. Large doses are to be avoided. It is better to begin with a dose that will certainly not do harm, from 2 to 4 grains (0.13 to 0.26 Gm.) daily of thyroid extract, and then check the basal rate in from ten days to two weeks. For each individual there is an optimal dose which must be found by experiment.

It is neither necessary nor desirable to bring the metabolic rate to normal. I have patients who have been taking from 3 to 5 grains (0.2 to 0.3 Gm.) of thyroid extract daily for more than two years. In none of these is the metabolic rate up to minus 10. It is not the figure of the basal metabolic rate but the well being of the patient which is the criterion for dosage.

Occasionally it is found that, after the administration of small doses of thyroid extract for from ten days to two weeks, the next basal metabolic rate is appreciably lower than the initial rate. Squier[19] has noted this. Swaim,[20] working with arthritic patients, has called attention to this phenomenon and explains it by assuming that the thyroid extract produces lessened tension in an organism which lacks the normal amount of thyroid hormone. It is, of course, possible that the second estimation finds the patient accustomed to the machine and the operator and his relaxation is more complete. Nevertheless, in what appears to be perfect duplicate estimations on first and subsequent tests, the second may be from 10 to 12 per cent lower than the first.

SUMMARY

Mild to severe grades of hypothyroidism (not myxedema) are common among persons living in a goiter region such as the Great Lakes basin.

All classes of people are affected; a considerable proportion are professional men and women.

Both underweight and overweight as well as normal weight are found among the patients.

The most important single symptom is an undue sense of fatigue, a physical exhaustion which often leads to a neurasthenic state.

Other frequent symptoms are constipation, susceptibility to mild infections such as coryza, various aches and pains, and, in women, scanty or profuse menstruation.

General abdominal soreness, especially along the colon and in the right iliac fossa, is frequent.

Diagnosis cannot be made without evidence of a low basal metabolic rate, as there are no pathognomonic symptoms or signs for the mild hypothyroid state.

Differential diagnosis must be made from other endocrine gland failures, especialy suprarenal, posterior pituitary and ovary: from such chronic diseases as (1) occult or incipient tuberculosis, (2) diabetes, (3) chronic nephritis, (4) pernicious anemia and other blood diseases.

Rheumatic aches and pains and headaches of a migraine type may be due to thyroid failure.

Thyroid extract can only normalize the nutritional needs of the body and should never be administered to reduce weight in individuals with normal thyroid function.

193 Prospect Avenue.

ABSTRACT OF DISCUSSION

Dr. T. L. Squier, Milwaukee: The subject Dr. Warfield has presented is of great interest, especially in this region. The view that in the Great Lakes basin, where goiter is prevalent, mild grades of thyroid insufficiency should be expected is fascinating and plausible. The number of lowered metabolism cases seen in the group usually classed as neurasthenic who complain of chronic fatigue is striking and the improvement in general well being of many in this group under thyroid therapy is most gratifying. Lowered metabolism can be caused by many factors other than hypothyroidism and even the therapeutic test does not establish a diagnosis. However, when improvement occurs one must wonder whether it results from actually supplying a thyroid lack, from pure psychotherapy, or from other unknown factors.

Almost without exception, those who have followed patients of the type described by Dr. Warfield have been impressed by the marked benefit seen after thyroid therapy. It is to be hoped that sometime it will be possible to make a differential diagnosis between hypometabolism and hypothyroidism. In the meantime the empiric use of thyroid extract, controlled by frequent metabolism tests, in those patients with a lowered rate who have symptoms, seems logical and justified.

Dr. C. N. Hensel, St. Paul: Since I have been recognizing and treating for the past three years such patients as Dr. Warfield has just described, I can heartily endorse what he has said. The profession is still imbued with the idea that underfunctioning of the thyroid gland is characterized by a myxedematous infiltration of the skin, increased body weight and mental sluggishness. In the absence of this syndrome, physicians do not even think of underfunctioning of the thyroid gland as a cause of fatigability and a feeling of incapacity either mental or physical. It is surprising how few patients with an underfunctioning thyroid gland are overweight, have a rough dry skin, or falling hair. Certainly half of my hypothyroid patients are of normal weight and possibly one fourth are even below weight, so that one cannot go on the objective manifestations but must accept the patient's subjective sensations, the first and most constant complaint being fatigability. Unlike the neurasthenic who hides behind his symptoms, the hypothyroid patient is annoyed with his inadequacy. One is surprised to find in this hypothyroid group plenty of active alert mental workers—executives, writers, school teachers, physicians, the lean type, the active driving type, sales managers, those who are trying to put energy into other people. Since I began to recognize this syndrome as a clinical entity and check my impressions by basal metabolimetry and institute treatment with desiccated thyroid gland, I have been amazed to see how many people have been helped back to a state of comfortable well being. I have even recalled my office patients whom I was unable to help four or five years ago, checked their basal metabolic rates, found them low, given them thyroid extract and seen them become happier, more vigorous and more efficient.

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[18] Koehler, A. E.: Differential Diagnosis Between Hypothyroidism and Hyposuprarenalism, J. A. M. A. **91**: 1457 (Nov. 10) 1928.

[19] Squier: Personal communication to the author.

[20] Swaim, L. T.: Chronic Arthritis: Further Metabolism Studies, J. A. M. A. **93**: 259 (July 27) 1929.

Dr. Leopold Lichtwitz, Altona, Germany: Hypothyroidism may sometimes be an independent disease. In other cases, of course, hypothyroidism is a part of other disturbances. Hypothyroidism, especially, may be the result of starvation. It is also known that it is a part of disturbances of the pituitary body, especially of atrophy or destruction of the anterior lobe. In these cases the basal metabolism is also low (— 30 per cent). From the clinical point of view, it is important to note that there are cases of hypothyroidism in which severe anemia is a symptom. I remember, for instance, the case of a woman, aged 30, who suffered from a severe anemia for which she had been treated without result for a long time. One week after beginning the administration of thyroidin, the anemia disappeared and the blood pressure was normal. The retention of water in the hypothyroid condition is remarkable. This water is removable from the body only by means of thyroidin. As Boothby found (and I have been able to confirm his work) the output of this fluid is in close relationship to the output of nitrogen. This means that the fluid retained in hypothyroidism consists of a certain amount of protein. In addition to the state of general hypothyroidism, the occurrence of symptoms of partial hypothyroidism, which are of especial interest in the condition of general hyperthyroidism, must also be taken into consideration. In some cases of exophthalmic goiter, evidences of hypothyroidism make their appearance in later years. It is rather difficult to understand this combination, but it is perhaps possible to do so if it is considered that the function of hormones generally consists of four parts: 1. The material for the formation of hormones. (In the case of thyroxine this material is thyrosine and *p*-oxphenylalanine.) 2. The formation of the hormone from the mother substance in the cells of the endocrine glands. 3. The excretion of the hormone from the cells. 4. (I believe this is a very important consideration.) The ability of every tissue, organ, and cell to take the hormone from the blood. I suggest that in some cases of disease due to hormone deficiency the fault may lie in the inability of the tissue to fix the hormone. If this fault concerns parts of the tissues only (the skin, for instance) a partial hypothyroidism is possible, even though general hyperthyroidism is present.

Dr. Louis M. Warfield, Milwaukee: One important point to remember, is that thyroid extract is a potent substance and those who give thyroid extract with the expectation of reducing weight should bear in mind that weight reduction, while it may occur, is often accompanied by symptoms so serious that the weight reduction itself is due to the toxicity and not to the beneficial effect of the thyroid extract. Thyroid extract can only normalize the nutritional needs of the body and should never be administered to reduce weight in individuals with normal thyroid functions.

INTRADERMAL, SCRATCH, INDIRECT AND CONTACT TESTS IN DERMATOLOGY

A COMPARATIVE STUDY *

MAXIMILIAN A. RAMIREZ, M.D.

AND

JOSEPH JORDAN ELLER, M.D.

NEW YORK

This presentation is a report of a comparative study of four types of sensitization tests on a series of 500 patients with dermatoses in whom the etiology was suspected to be of allergic origin. From 200 to 400 tests were done on each patient.

Table 1.—*Total Number of Cases Tested, Divided into Groups*

Clinical Diagnosis	Number of Cases
Urticaria	126
Herpes labialis (recurrent)	8
Angioneurotic edema	18
Neurodermatitis (pruritus with lichenification)	77
Dermatitis medicamentosa	46
Potassium iodide (intravenous)	14
Potassium iodide (mouth)	8
Phenolphthalein	2
Dover's powder (ipecac)	1
Sodium bromide	11
Phenobarbital	6
Salicylic acid	4
Endogenous eczematoid dermatitis	114
Contact dermatitis	105
Zinc oxide	1
Iodine	2
Creosote	1
Glycerin	1
Ursol (fur dye)	2
Barbasol	2
Newspaper:	
Brown section	2
Daily paper	2
Contact dermatitis—Cont.	
Quinine	4
Procaine	4
Ephedrine	4
Fox fur (undyed)	2
Beaver (undyed)	1
Glue	2
Poison ivy	16
Primrose	1
Dandelion	1
Pollen:	
Ragweed	4
Timothy	1
Pyrethrum	8
Kapok	2
Silk	18
Rayon	1
Wool	4
Cat hair	1
Dog hair	1
Horse hair	4
Human hair	1
Cotton	1
Flax (linen)	1
Orris root	9
Rabbit hair	1
Photodermatitis, sunlight	4
Thermodermatitis	2
Cold air	1
Heat	1

The dermatologist of today is making an earnest effort to treat the various dermatoses from the standpoint of their specific etiology. We realize that many dermatologists are discouraged at the lack of aid which they have obtained in the past from sensitization tests.

Table 2.—*Cases Giving Positive Skin Reactions by One or More Methods*

Total Number Tested	Clinical Diagnosis	Number of Cases	Percentage
126	Urticaria	96	76.2
8	Herpes labialis	6	75.0
18	[illegible]	12	66.7
77	[illegible]	52	67.5
46	[illegible]	2	4.3
114	[illegible]	98	85.9
105	[illegible]	92	87.6
4	[illegible]	4	100.0
2	[illegible]	2	100.0

As a result of the observations herein presented, we are convinced that one may be more optimistic in this regard.

It is most important that sensitization tests be interpreted by one who is experienced. A sufficient number of tests must be done to include all sources of exposure in each case. Tests should be repeated several times by different methods if indefinite or suspicious reactions are obtained to a suspected substance. In interpreting reactions one should realize that patients at times are in a so-called refractory state and will not react even to substances to which they are highly sensitive. Also during a state of skin hyperirritability a wheal and erythema may occur at every tested area, including the controls. This state of skin hyperirritability may be fairly localized or generalized. It may be temporary or persistent, in which case it is practically impossible to interpret skin reactions accurately. In these cases the indirect method of testing is of particular value and is the method of choice. Thorough catharsis and rest in bed on a limited diet will often lessen the irritability of the skin.

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* From the Departments of Immunology and Dermatology of the French Hospital.

* Read before the Section on Dermatology and Syphilology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

TABLE 3.—*Number of Cases Proved to be Caused by Substance Giving Positive Skin Reaction*

Total Number Tested	Clinical Diagnosis	Reacting to Tests, Number	Proved as Due to Substance Giving Positive Reaction: Number	Per Cent	Substance
126	Urticaria	96	14	14.5	
8	Herpes labialis	6	1	16.7	Chocolate
18	Angioneurotic edema	12	4	33.3	Fish, celery, brazil nut
77	Neurodermatitis	52	3	5.7	Wheat, barley, egg
46	Dermatitis medicamentosa	2	2	100.0	Phenolphthalein Dover's powder
114	Endogenous eczematoid dermatitis	98	9	9.0	
105	Contact dermatitis	92	81	88.0	
4	Photodermatitis	4	4	100.0	
2	Thermodermatitis	2	2	100.0	

TABLE 4.—*Cases Failing to Give Positive Skin Reactions to Substances Proved to be the Cause of the Dermatosis* *

Total Number Tested	Clinical Diagnosis	Cases, Number	Due to Specific Substance, Number	Per Cent	Substance
126	Urticaria	30	0	0.0	
8	Herpes labialis	2	0	0.0	
18	Angioneurotic edema	6	2	33.3	Whisky; mushroom
77	Neurodermatitis	25	0	0.0	
46	Dermatitis medicamentosa	44	44	100.0	
114	Endogenous eczematoid dermatitis	16	10	62.5	Banana, 1; orange, 2; excess fats, 4; excess carbohydrates, 3
105	Contact dermatitis	13	3	23.0	Newspaper, 1; barbasol, 1; quinine, 1
4	Photodermatitis				
2	Thermodermatitis				

* Proof is based on disappearance of symptoms by withdrawal of offending substance and recurrence on renewed exposure.

The accompanying tables show in tabulated form the results of sensitization tests in the present series of cases.

The following are case histories taken from our series and presented because of their unusual interest:

REPORT OF CASES

CASE 1.—A boy, aged 11, had had asthma and persistent dermatitis for the past two years, with occasional periods of freedom and with definite exacerbations every week-end. The boy made a practice of visiting his uncle on a farm every week-end throughout the year and slept in the same bed with him. After protracted testing and investigation, it was shown that the asthma and dermatitis were both due to a specific hypersensitiveness to human hair (uncle's hair). Tests with extracts of hair from other members of the family were negative. At first it was thought that possibly something in the bed or room on the farm was responsible rather than the hair. The uncle was prevailed on to spend one week-end in New York and sleep in the same bed with the patient, who had always been free from asthma in New York. The child had a severe attack of asthma and an exacerbation of the dermatitis. The following week-end the boy was instructed to go to the farm, and to sleep in a room, not with his uncle. The result was absolute freedom from symptoms.

TABLE 5.—*Results of Different Methods of Testing in Groups Giving Positive Reactions*

Total Number Tested	Clinical Diagnosis	No. of Cases	Scratch: No.	Scratch: Per Cent	Intradermal: No.	Intradermal: Per Cent	Patch or Contact: No.	Patch or Contact: Per Cent	Indirect or Passive Transfer: No.	Indirect or Passive Transfer: Per Cent
126	Urticaria	96	88	92.6	96	100.0	0	0.0	3	3.1
8	Herpes labialis	6	6	100.0	6	100.0	0	0.0	0	0.0
18	Angioneurotic edema	12	9	75.0	12	100.0	0	0.0	1	8.3†
77	Neurodermatitis	52	52	100.0	48	92.3	0	0.0	1	1.9‡
46	Dermatitis medicamentosa	2	2	100.0	2	100.0	0	0.0	0	0.0
114	Endogenous eczematoid dermatitis	98	98	100.0	98	100.0	0	0.0	1	1.0
105	Contact dermatitis*	92	67	72.8	73	79.3	76	82.6	13	14.1
4	Photodermatitis	4	..	....	..	....	..	....	0	0.0
2	Thermodermatitis	2	..	....	..	....	..	....	0	0.0

* Table 6, "contact dermatitis." † Fish. ‡ Barley.

CASE 2.—A Negro man, aged 54, had had almost daily attacks of giant urticaria and angioneurotic edema involving various parts of the body during the past two years. Repeated tests and treatments were of no avail. The removal of a definitely abscessed tooth caused an immediate and permanent disappearance of all symptoms. A culture taken from the socket and from the root of the tooth showed a pure growth of *Streptococcus hemolyticus* and a testing suspension prepared from this organism gave a very strongly positive skin reaction by the intradermal method. Passive transfer tests were negative.

TABLE 6.—*Results of Individual Methods of Testing in "Contact Dermatitis"*

Clinical Diagnosis	No. of Cases	Scratch: No.	Scratch: Per Cent	Intradermal: No.	Intradermal: Per Cent	Patch or Contact: No.	Patch or Contact: Per Cent	Indirect or Passive Transfer: No.	Indirect or Passive Transfer: Per Cent
Poison ivy	16	0	0.0	0	0.0	16	100.0	0	0.0
Primrose	1	0	0.0	1	100.0	1	100.0	0	0.0
Dandelion	1	1	100.0	1	100.0	1	100.0	0	0.0
Ragweed	4	4	100.0	4	100.0	2	50.0	3	75.0
Timothy	1	1	100.0	1	100.0	0	0 0	0	0.0
Pyrethrum	8	8	100.0	8	100.0	8	100.0	0	0.0
Kapok	2	2	100 0	2	100.0	1	50.0	0	0.0
Silk	18	18	100.0	18	100.0	18	100.0	4	22.2
Rayon	1	1	100.0	1	100.0	1	100.0	0	0.0
Wool	4	3	75.0	4	100.0	4	100.0	0	0.0
Cat hair	1	1	100.0	1	100.0	0	0.0	1	100.0
Dog hair	1	1	100.0	1	100.0	0	0.0	0	0.0
Horse hair	4	4	100.0	4	100.0	2	50.0	4	100.0
Human hair	1	1	100.0	1	100.0	0	0.0	0	0.0
Cotton	1	1	100.0	1	100.0	1	100.0	0	0.0
Flax (linen)	1	0	0.0	1	100.0	1	100 0	0	0.0
Orris root	9	9	100.0	9	100.0	0	0.0	0	0.0
Rabbit hair	1	1	100.0	1	100.0	0	0.0	0	0.0
Zinc oxide	1	0	0.0	0	0.0	1	100.0	0	0.0
Iodine	2	0	0.0	0	0.0	2	100.0	0	0.0
Creosote	1	0	0.0	0	0.0	1	100.0	0	0.0
Glycerin	1	0	0.0	0	0.0	1	100.0	0	0.0
Paraphenylendiamine (ursol)	2	0	0.0	0	0.0	2	100.0	1	50.0
Barbasol	2	0	0.0	0	0.0	2	100.0	0	0.0
Newspaper	4	2	50.0	4	100.0	1	25.0	0	0.0
Quinine	4	0	0.0	0	0.0	2	50.0	0	0.0
Procaine	4	1	25.0	1	25.0	4	100.0	0	0.0
Ephedrine	4	3	75.0	4	100.0	1	25.0	0	0.0
Fox	2	1	50.0	1	50.0	1	50.0	0	0.0
Beaver	1	0	0.0	0	0.0	0	0.0	0	0.0
Glue	2	2	100.0	2	100.0	2	100.0	0	0.0

Case 3.—A boy, aged 11, was sensitized to silk. The avoidance of contact with silk resulted in an almost complete disappearance of the skin lesion and an exacerbation on renewed contact. This case is presented because of the typical clinical appearance and history of neurodermatitis.

Case 4.—A woman, aged 32, for the past five years had had a pruritic eruption on the face, neck and hands. These symptoms began during the last week of August or the early part of September and lasted until the middle of October. In 1928, the eruption persisted until December. There was no history of asthma, hay-fever, urticaria or migraine. The family history was negative. Skin tests were positive to giant and short ragweed by the scratch, the intradermal and the patch method of testing. Passive transfer tests were also positive. A series of injections with mixed ragweed, started in March, 1929, and continued until October, 1929, proved successful. The patient had no discomfort throughout the ragweed season. Without outlining in detail the case histories of other ragweed dermatitis cases, we wish to point out that two of our patients who also had symptoms of hay-fever and reacted positively to scratch and intradermal tests did not react by the patch or contact method of testing. One gave a positive passive transfer and the other did not. Both of these patients were free from symptoms following immunization.

Case 5.—A chauffeur, aged 26, had had hay-fever in the spring and fall for the past eight or ten years. He had had a persistent pruritic eruption on the face and hands for the past two years. It started in August, 1927, and with brief periods of improvement had persisted ever since. Skin tests were strongly positive to timothy, June grass, ragweed, and pyrethrum by scratch and intradermal tests. A positive patch test was obtained only to pyrethrum. Passive transfer tests were negative. Cases of pyrethrum dermatitis are well known to dermatologists. The reason for reporting this case is that it was definitely proved that the source of contact was "Flit," which was used by the patient to spray the inside of the car several times a week. Another point of interest is that a positive patch test was obtained in this case to pyrethrum, which was eventually shown to be the important etiologic factor and a negative patch test to the other pollens which, though responsible for the associated hay-fever, were not related to the dermatitis.

Table 7.—*Comparison of Methods in Cases Proved to be Due to the Substance Giving a Skin Reaction*

Total Number Tested	Clinical Diagnosis	No. of Cases	*Scratch* No.	*Scratch* Per Cent	*Intradermal* No.	*Intradermal* Per Cent	*Patch or Contact* No.	*Patch or Contact* Per Cent	*Indirect or Passive Transfer* No.	*Indirect or Passive Transfer* Per Cent
126	Urticaria	14	10	71.4	14	100.0	0	0.0	3	21.4
8	Herpes labialis	1	0	0.0	1	100.0	0	0.0	0	0.0
18	Angioneurotic edema	4	4	100.0	4	100.0	0	0.0	1	25.0
77	Neurodermatitis	3	3	100.0	3	100.0	0	0.0	1	33.3
46	Dermatitis medicamentosa	2	2	100.0	2	100.0	0	0.0	0	0.0
114	Endogenous eczematoid dermatitis	9	9	100.0	9	100.0	0	0.0	1	11.1
105	Contact dermatitis	81	67	82.7	73	90.1	76	93.8	13	16.0
4	Photodermatitis	4	..	....	..	....	..	....	0	0.0
2	Thermodermatitis	2	..	....	..	....	..	....	0	0.0

Case 6.—A girl, aged 17, had a dermatitis on the neck, chest, arms, legs and abdomen of two years' duration. There was no history of hay-fever, asthma or urticaria, and the family history was negative for these conditions. Skin tests were negative except to an extract of rayon, which gave a strongly positive reaction by the scratch, intradermal and patch methods but a negative passive transfer. Rayon is made from a vegetable fiber or from wood pulp. It is impossible to determine the exact source of the rayon used in the manufacture of a given piece of material, as many varieties are usually used in making up a single piece of cloth. This case was absolutely negative to real silk and was cured on removal of contact with rayon.

Case 7.—A woman, aged 42, had had asthma and urticaria for the past three months. The symptoms appeared only after retiring in her own room, where she had lived for many years. It was found that change of environment immediately relieved the asthma as well as the urticaria and a return to her own room caused a return to the symptoms. After much investigation a definite sensitization to a green penicillium was established. A culture of this fungus was obtained by exposing Sabouraud plates in her room. Positive skin tests were obtained with a saline extract by the scratch and intradermal methods of testing and a positive passive transfer of reacting antibodies demonstrated. The patient is still under treatment with injections of an extract of the mold to which she is specifically sensitive. She also has changed her residence and has been free from all symptoms.

Case 8.—A woman, aged 36, had a dermatitis due to sensitization to the rotogravure section of a Sunday newspaper and also to the daily newspaper. We have had several such cases associated with perennial sneezing and one case with mild paroxysms of dyspnea. This patient had a dermatitis of both hands of two years' duration. A positive skin reaction was obtained by the scratch, intradermal and patch methods to both the rotogravure and the ordinary daily newspaper. Tests with pure para red, with black printers' ink, with printing paper before it went to press, and with extracts of wood pulp from willow, birch and spruce (which are the trees ordinarily used in making paper) were all negative. Repeated tests with the printed newspaper itself were positive. Absolute avoidance of contact resulted in a complete disappearance of the dermatitis in a few weeks and a recurrence after a week of renewed exposure.

Case 9.—A man, aged 52, had had a dermatitis in the region of the upper lip and sides of the nostrils for the past two months, and also asthma for twelve years. By skin tests as well as by removal of the offending substance and again by renewed exposures, it was proved that the dermatitis was due to sensitization to ephedrine used in a nasal spray. It is interesting to note that the same ephedrine nasal spray had been used daily by the patient for about two years without skin symptoms, and that only within the past two months did the dermatitis appear.

Case 10.—A woman, aged 22, had had a recurrent dermatitis of both hands for the past three years. Extracts prepared from dust obtained from old books in her father's library, which she handled and arranged almost every day, produced a positive skin reaction. Tests to leather and paper were negative. There was a positive reaction to glue and to several fish extracts. Ingestion of a large amount of fish caused an attack of urticaria and severe headache.

Case 11.—A dentist, aged 32, had had a recurrent dermatitis of both hands and face for the past eight months. There was no history of asthma or hay-fever but occasional attacks of generalized urticaria. Tests demonstrated the cause of the dermatitis to be ethyl alcohol. A reaction was obtained by the intradermal and the patch methods, but the tests were negative with the scratch and the indirect methods. Avoidance of contact resulted in a disappearance of the persistent eruption, and renewed exposure caused a recurrence.

Case 12.—A man, aged 39, had had recurrent attacks of urticaria on the hands and face for the past two years. Wheals appeared only on exposure to cold air. There was no history of asthma or hay-fever. The family history was negative. Exposure to cold air produced an urticarial eruption within one minute. Applications of ice and other skin tests were negative.

SUMMARY AND CONCLUSIONS

Sensitization tests are a distinct aid in the diagnosis of dermatoses if carefully performed and interpreted.

A thorough and complete immunologic survey must be done in each individual patient and tests repeated when necessary.

The patch or contact method of testing is superior to other methods in determining susceptibility to external irritants, particularly those of nonprotein structure.

The intradermal method of testing is more sensitive than the scratch. It is more apt to produce false local reactions as well as alarming systemic reactions in the highly sensitive. It is preferable to use the scratch method first and check up with the intradermal.

The indirect method of testing, using the principle of local passive transfer as demonstrated by Prausnitz and Kustner, has its field of distinct usefulness. This is particularly true in very young children in whom it is difficult to do a large series of tests. It is also useful in patients with a persistent hyperirritability of the skin and when the dermatosis covers such a large area that direct testing would be impracticable. The indirect method of testing has its limitations. One cannot always demonstrate the presence of specific reagins even in cases proved to be specifically sensitive. It is not especially useful in cases hypersensitive to external excitants of nonprotein nature.

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ABSTRACT OF DISCUSSION

Dr. F. J. Eichenlaub, Washington, D. C.: The authors present a large number of figures relative to the relation of allergy to various dermatoses. Before considering their figures in detail I would emphasize the fact that their concept of the subject is a broad one. Broadening one's conception will strengthen one's knowledge. They include everything causing the phenomena recorded. In table 4 are recorded four cases of endogenous eczematoid dermatitis due to an excess of fats and three to an excess of carbohydrates. I believe that most dermatologists would regard these cases as eczema of metabolic origin, rather than allergic in the commonly accepted sense. Some of the cases recorded could in actual practice be correctly ferreted out from an intelligent history and from the appearance of the lesions. This is particularly true in many cases of dermatitis venenata and urticaria. Thus, the various tests are often unnecessary in ordinary practice, although invaluable for scientific analysis in such papers as this. It is perhaps fortunate that such is the case. In this study I note, for instance, that in table 3 tests were made in 500 cases. Of these, 362 gave positive reactions but only 120 cases proved to be attributable to the substances to which they reacted. In table 4 I note that 136 failed to give positive reactions to any of the tests, although in 57 of these the cause was discovered by other methods. In spite of these seemingly discouraging figures, I believe the present study is a cause for distinctly more optimism in this field. In my own work I have found the scratch and intradermal methods of testing sensitization discouraging. With the addition of contact testing and passive transfer, however, many puzzling cases may be solved which now resist efforts at treatment. With the data given here and in similar papers I think the present position of sensitization testing for ordinary practice can be summarized as follows: 1. In a majority of cases the causative factor can be elicited by the combination of intelligent history taking and clinical experience. 2. In the smaller number of cases that resist ordinary methods the use of any or all of the methods outlined in this paper should be vigorously pursued in an effort to detect the etiology. 3. Possible constitutional factors in many of the cases, particularly in neuroses, should not be overlooked.

Dr. Harry M. Hedge, Chicago: I wish to ask for a little more information regarding three cases I observed during the last year. The patients were sent to the sensitization department to determine their activity to silk. They had a lichenified eruption and all cases resembled one another. There was marked itching and lichenification and it was determined that each of the patients was sensitive to silk. I took sections of their own dresses and sections from a silk smock belonging to the secretary in the social service department, and sections of my tie, which was silk, and fastened them on their arms, one wet and one dry, and none of these individuals responded to the scratch test. They claimed to be very sensitive and to be troubled even when riding on a street car or bus next to a silk dress, and to be unable to wear any silk, including hose. I notice that these investigators have found a large percentage of positives, and I wish to know why these patients did not show any reaction to the scratch test. Their idea was that when they were away from silk they had no difficulty. I should like to know whether there was anything in the mental element in these cases.

Dr. Walter J. Highman, New York: When the Wassermann reaction burst on the public, the words Wassermann and syphilis became synonymous. Repeatedly, with scientific methods of considering diseases, a patient will be thought not to have eczema if he does not have a positive scratch test. This is not due to the investigators. The tests indicate the way in which many eczemas may be produced. It is not necessarily implied that since these tests exist everything about the disease is known, or that these tests are optimal for every case. The procedure is merely one way of studying such cases. The fact that the tests do not always work with subjects in whom they should, or that they do work in subjects in whom they should not, indicates only the human limitations involved. Ultimately I hope these problems will be worked out, but dermatologists should not get into the state of mind that, because they have another method of approaching the problem, the problem will necessarily be solved by the application of only this method. Unfortunately, syphilis has survived the misinterpretation of the significance of the Wassermann reaction. The patch test is not eczema.

Dr. Fred Wise, New York: Many cases of neurodermatitis are seen in New York, and tests have been disappointing. In view of the fact the neurodermatitis often occurs in association with asthma and hay-fever, one would expect that, in this disorder, positive skin tests would be more likely to be obtained. As a matter of fact, I have been unable, both in the office and at the clinic, to obtain positive tests in neurodermatitis. Many still consider neurodermatitis to be a form of eczema; but the fact that the patch test in the hands of Drs. Ramirez and Eller is usually negative, and the scratch test often positive, indicates that the two diseases are inherently different types of skin disease and it would be gratifying to me if the men who see a large number of these cases in different cities would make these tests that have been described and report their results at future meetings, especially in neurodermatitis.

Dr. Marion B. Sulzberger, New York: The discussion has centered about the value of skin tests and the comparative value of the different types of tests. There is only one way to ascertain this, and that is by statistics. They all differ, depending on how they are carried out, and there is a great variation in the results obtained by different men. This is only natural. A man must be a detective to find the cause of an obscure dermatitis. Sometimes very small things will give a clue, and it is really more detective work than other branches of medicine, although all diagnoses seem to me a higher form of detective work. I agree absolutely with what Dr. Wise said regarding neurodermatitis. I sometimes think that a neurodermite belongs more to the urticarial than to the eczematous type of eruption. Frequently papular urticarial elements are seen which are reactions of the very superficial regions of the cutis. I believe that many cases of neurodermite may be intermediate between urticaria and true eczema in their pathogenesis. I think, in this connection, that something more can be worked out about neurodermite, and it would be interesting to have statistics of the frequency of occurrence of urticaria and neurodermite in the same patients.

Dr. M. W. Rubenstein, Pittsburgh: Professor Gans pointed out that neurodermatitis has its origin in the urticarial type of lesions. This contention is evidently borne out by the remarks of the authors and by the scratch test, that neurodermatitis does not belong to the vesicular or eczematoid type of reactions but does belong to the urticarial group.

Dr. Maximilian A. Ramirez, New York: There is great danger of becoming overenthusiastic about any method that is in popular favor. This is true not only in dermatology but in many other things. The term "allergy" is so loosely employed now that a stage has been reached in which no one knows what allergy is or what is being talked about.

RELATION OF INFECTION OF THE EAR AND INFECTION OF INTESTINAL TRACT IN INFANTS

RESULTS OF FIVE YEARS' STUDY *

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This paper is an attempt to answer the question: Is infection of the mastoid the cause of acute intestinal intoxication in infants?

During the past five years this question has been intensively studied by pediatricians and otologists in Canada and the United States. The literature has been ably reviewed by G. M. Coates.[1] The students of this problem are at present roughly divided into two widely divergent camps: those who believe that infection of the mastoid is the cause of acute intestinal intoxication in infants and those who believe that it is not. Physicians and surgeons of eminence are to be found in each camp, but the majority of their papers support, to some extent, the idea that infection of the mastoid antrum may be the cause of this mysterious disease.

THE DISEASE

An intense form of gastro-intestinal disease affecting infants under 2 years of age, occurring apparently in epidemics, and exceedingly fatal in its effects, is known under several titles, of which acute intestinal intoxication, acute infectious intoxication and cholera infantum are the most frequently used. The disease is not peculiar to any one section of Canada or the United States but has appeared in the North, in the South, in the East and in the West. In the opinion of our medical staff, the symptom complex which appears in Toronto is essentially the same as that which exists in other parts of the country. Our conclusions, obviously, are based on the type that we have seen.

The study of this disease has been pursued in many ways at the Hospital for Sick Children, Toronto, for the past five years. Each year details have been discovered that were unobserved in the previous year's study and new avenues for research have been considered and followed. The subject is still being investigated and at the present time a large staff is occupied with various lines of research. Much valuable information has been amassed in this time. The present paper deals more particularly with the otologic aspects of the problem. A preliminary report on the medical aspects of the problem has recently been presented by Dr. Alan Brown, physician-in-charge of the hospital, before the Southern Medical Association. He described the disease as follows:

> Acute intestinal intoxication is a distinct clinical entity. The condition is characterized by three cardinal signs and symptoms; namely, diarrhea, vomiting and drowsiness.
>
> The history usually obtained is that the illness starts with diarrhea, followed by vomiting and drowsiness. The vomiting occurs two to ten times a day. The stools, which are five to ten a day, are loose and watery and sometimes contain mucus, but not the pus and blood seen so frequently in dysentery. The degree of drowsiness varies even in the same infant. In the mild and moderately severe cases the infant may appear quite bright when aroused. Even the disturbance produced by undressing the infant may be sufficient to dispel any evidence of drowsiness. For this reason the patient should be carefully observed before being disturbed in any way. When aroused the infant has a shrill, piercing cry, although in the severe cases the cry may be only a weak moan. The temperature rarely exceeds 102 or 103 F. The color of the skin is ashen gray, the eyes are sunken, the hands and feet are cold and clammy and either cyanosed or gray in color. Dehydration is invariably present, as shown by loss of elasticity of the skin. The liver is usually enlarged. In many instances infections of the upper respiratory tract, including the ears and mastoids, are encountered.
>
> The condition occurs not only in the undernourished marantic infant with a history of previous gastro-intestinal disturbances, but likewise in infants of normal weight with no history of previous trouble. It is a disease chiefly of the free dispensary class, being rarely encountered in well-to-do families, although we have seen an occasional case in this latter group.
>
> The course of the disease may be very rapid, some infants dying within twenty-four to forty-eight hours of the onset of drowsiness in spite of any treatment employed. In other cases the drowsiness disappears and the vomiting ceases within twenty-four hours of the institution of treatment and the infants make an uneventful and usually rapid recovery. The remaining patients continue to vomit slightly and are drowsy for many days before they make the turn one way or the other. The mortality in the severe cases is very high, being well over 50 per cent. This is irrespective of the previous nutrition of the infant. In fact, the large, rather fat infant frequently shows the least resistance to the disease.

Appearance of infant suffering from typical acute intestinal intoxication.

> The pathological findings recorded have given little help as to the etiology of the condition. No consistent pathological changes have been recorded.
>
> Many theories have been advanced in recent years as to the etiology of acute intestinal intoxication, such as: (1) the production of some toxic substance from the food by decomposition; (2) improper foods; (3) infection of the intestinal wall with bacteria, or (4) abnormal absorption of catabolites from the bowel. Numerous bacteriological researches have failed to reveal a pathognomonic organism.

THE MASTOID INFECTION THEORY

A more recent theory has, however, thrown suspicion on the mastoid antrum as the etiologic factor.

A study of the extensive literature on the subject shows that a number of facts have been observed, a number of assertions made, and certain deductions drawn regarding the connection of mastoid antrum.

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* From the Laryngological Service, Hospital for Sick Children.

* Read before the American Otological Society, Swampscott, Mass., May 20, 1930.

* Owing to lack of space, this article is abbreviated in The Journal by the omission of a bibliography. The complete article appears in the author's reprints.

[1] Coates, G. M.: Mastoid Infection in the Infant, Ann. Otol., Rhin. & Laryng. 36: 913 (Dec.) 1927.

infection and the disease. The argument has been developed much as follows:

1. At autopsy on infants dying from acute intestinal intoxication:
   - (*a*) No evidence of gastro-enteritis has been discovered.
   - (*b*) Accumulations have been found in the ear cavities.
   - (*c*) Cultures from these accumulations have yielded organisms.
2. During the course of the disease:
   - (*d*) Otitis media has been observed.
   - (*e*) If not observed, the presence of infection has been established by incision of the ear drums,
   - (*f*) or, if necessary, by antrotomy.
   - (*g*) Mastoiditis, obvious or latent, could be inferred.
   - (*h*) A simple mastoidectomy or antrotomy would demonstrate the presence of antrum infection, and afford the patient much greater opportunity of recovery.
3. Hence it has been argued that the infection found in the mastoid antrum:
   - (*i*) was the cause of vomiting, diarrhea and drowsiness,
   - (*j*) was the cause of the acute intestinal intoxication.

Each of these points has been carefully considered in our observations.

METHODS OF INVESTIGATION

An outline of the method of investigation used will now be given, but to avoid repetition it is necessary to make a few preliminary remarks.

The term "infant" is used to designate a child 24 months of age or less.

The facts and figures used are drawn from an elaborate study of all pertinent records for five consecutive years, from 1925 to 1929 inclusive, at the Hospital for Sick Children, Toronto.

The statistics and conclusions have the consideration and approval of the physician-in-chief, and his research department and the pathologist and his department.

The relationship of infection of the paranasal sinuses is not considered in this report.

In the earlier years, aspects of the subject were studied from time to time with the object of proving certain preconceived ideas regarding it. At the outset there appeared to be adequate support for the contention that cloudy material in the mastoid antrum was the etiologic factor in this disease. The conclusion did not meet with the unanimous approval of the staff of this hospital, on the ground that the work was done on too small or too specialized groups of patients.

Realizing the defects of the previous work and the many-sidedness of the subject, eighteen months ago we planned a comprehensive "investigation of infants suffering from this disease, which investigation has been in progress since that time." Certain workers were allotted to the observation of particular parts of the investigation. The clinical and chemical observations were undertaken by the physician-in-chief and two of his clinicians. An experienced bacteriologist undertook the bacteriologic examination of the blood, stools, urine and upper respiratory tract as well as the serologic tests. Three other members of the research department studied the blood volume, the capillary blood flow and the sugar tolerance. The department of pathology gave the autopsies special consideration. The attempt was made and still is being made to study every aspect of the disease without bias.

During the period when acute intestinal intoxication was epidemic, every infant exhibiting on admission the three cardinal signs and symptoms of vomiting, diarrhea and drowsiness was at once examined by a constant group of observers. The observations and the conclusions of all were dictated on the spot to a stenographer. The ears, nose and throat were minutely examined. The nasopharyngoscope was invariably used. Swabs for culture were taken from the nose, nasopharynx, ears and throat with rigid regard to care against contamination. Repeated examinations at later dates were similarly made. If the patient succumbed, an earnest attempt was made to secure an autopsy, and if that was successful great care was taken in the observations on the temporal bone.

FACTS REVEALED BY ROUTINE AUTOPSIES

Material Available for This Investigation.—Study of the autopsies in the earlier years of the investigation revealed the fact that the head had been examined in a disappointingly small percentage of instances. From the commencement, therefore, of the comprehensive investigation, effort has been made to get permission for the examination of the head at postmortem.

Table 1 shows the number of patients handled in our infant ward in the past five years, the number of deaths, the number of autopsies and the number of instances in which the head was examined.

The Infant Antrum at Autopsy.—The conception that suppuration of the ear was the essential factor in the infant mortality of this disease had its origin in the observation that at autopsy accumulations of pus or cloudy fluid were found in the mastoid antrums. Other observers had suggested that this material would be found in all mastoid antrums a few hours after death; suggesting, therefore, that the accumulations were a postmortem change.

Table 1.—*Autopsies on Infants 24 Months of Age and Under*

Year	Total Number of Admissions to Infant Ward	Total Deaths	Total Autopsies (Excluding Those Dying in the First Few Days of Life)	Total Number in Which the Heads Were Examined
1925	1,223	333	110	27
1926	1,217	367	84	39
1927	1,254	328	111	68
1928	1,247	365	136	100
1929	1,429	431	177	90
Total for five years	6,370	1,814	618	324

It was, therefore, necessary to discover evidence regarding this point. To do this, the autopsies of all patients 24 months of age and under for the past five years have been examined. Out of 324 autopsies on the head, 199 showed both mastoids healthy, 49 showed one mastoid with fluid in it and 75 showed material in both mastoids (table 2).

The relationship of these figures to the number of hours after death that the autopsy was performed was also studied. Of the cadavers showing healthy mastoids 114 were examined from one to ten hours after death, 50 from eleven to fifteen hours after death, 21 from sixteen to twenty hours after death, and 14 twenty or more hours after death.

This conclusively proves that the mastoid antrums of infants are as a rule healthy and that with due care they may remain so for many hours after death. It can therefore be inferred that accumulations or infections found in the mastoid antrums of infants at autopsy, provided the cadaver was at once put in cold storage, are ante mortem in origin.

FACTS REVEALED FROM CLINICAL INVESTIGATION

Analyses of the records of patients suffering from acute intestinal intoxication in the first three years are not given because there were so many errors and omissions that the members of the staff have not been able to agree on the conclusions, but, as previously stated, in 1928 and in 1929 two long series of cases were studied so carefully that there is unanimity regarding the figures quoted.

Gross Observations at Autopsy.—Series of 1928: In 1928 eighty-three infants were critically studied, and forty-one cases were finally classified as acute intestinal intoxication. Twenty of the forty-one patients died. Autopsies on the head were performed on five (table 3).

In all of them evidence of an intestinal infection was found. In two, slight evidence of pathologic change was found in the antrum or its immediate periphery only; there was no involvement of the greater part of the mastoid; pure cultures of hemolytic streptococcus and *B. hoffmanni* were obtained. In three there was no mastoid infection.

Therefore the autopsies on this series show that mastoid infection was not the primary cause of the intoxication.

Series of 1929: In 1929, 158 infants were critically studied; 127 cases were finally classified as acute intestinal intoxication. Fifty-six of the latter patients died. Autopsies on the head were performed on fifteen.

In all of them evidence of an intestinal infection was found.

Of the six cadavers showing mastoid involvement, two showed minute change in one mastoid only, and four had considerable purulent material in both mastoid antrums. In nine of these there was no mastoid infection.

Therefore the autopsies on this series show that mastoid infection was not the primary cause of the intoxication.

Bacteriology.—The incidence of hemolytic streptococci in the upper respiratory tract of the two series showed considerable similarity in spite of the inequality in number.

The control series of 1929 showed a higher percentage of hemolytic streptococcus changes in throats than the series of 1928. This was rather surprising, since some control studies were conducted during the colder weather in that series whereas the series of 1929 was studied entirely in the warmer months of the year (table 4).

The presence of streptococci in the nose and throat then has little significance, since it has not the seasonal incidence to correspond with that of acute intestinal intoxication. Moreover, the presence of hemolytic streptococci in both case and control studies further weakens the possibility of their etiologic significance. Again, upper respiratory infections, if of causative importance, should be produced by a uniform flora; this was not the case.

In only five of the 1928 series was the organism picked up from the nose or throat the same as that picked up from the ear. In all other cases there was no correspondence between the organisms grown from swabs from the nose and throat and those from the ear.

Table 2.—*Conditions Found in the Mastoids of Infants at Autopsy*

						Relation of Age to Condition of Mastoid										Relation of Hours After Death That Autopsy Was Performed to State of Mastoid																
		Age Incidence				One to Six Months			Seven to Twelve Months			Thirteen to Twenty-Four Months				One to Ten Hours			Eleven to Fifteen Hours			Sixteen to Twenty Hours			Twenty Hours and On				Condition of Mastoids			
Year	Number of Autopsies on Head	One to Six Months	Seven to Twelve Months	Thirteen to Twenty-Four Months	Unknown	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Unknown	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Unknown	Both Healthy	Fluid in One Mastoid	Fluid in Two Mastoids	Unknown
1925	27	12	9	6	..	12	..	..	9	..	..	5	1	..	..	12	..	..	7	..	..	5	1	..	2	..	..	..	26	1	..	..
1926	39	20	12	7	..	16	2	2	11	..	1	6	..	1	..	17	2	1	7	..	2	5	..	..	4	..	1	..	33	2	4	..
1927	68	40	20	8	..	20	9	11	15	2	3	3	4	1	..	29	8	11	4	4	2	4	3	1	1	..	1	..	38	15	15	..
1928	100	61	18	20	1	26	11	24	9	3	6	9	1	10	1	28	6	25	12	4	7	3	5	6	1	1	2	..	44	16	40	..
1929	90	53	17	20	..	35	9	8	8	6	3	16	..	5	1	28	8	12	20	5	2	4	2	1	6	..	1	1	58	15	16	1
Total	324	186	76	61	1	109	31	45	52	11	13	39	6	17	2	114	24	49	50	13	13	21	11	8	14	1	5	1	199	49	75	1

Table 3.—*Comparison and Totalization of Series of 1928 with Series of 1929*

		Condition		First Symptoms			On Admission						While in Hospital								Result			Autopsy Observations		
	Number	Well Nourished	Poorly Nourished	Cold	Vomiting	Diarrhea	Fever	Toxic	Nose Clean	Nose Discharging	Ears Normal	One or Both Ears Discharging	Nose Infected	Throat Infected	One or Both Ears Infected	One or Both Mastoids Infected	Glands Swollen	Vomiting	Diarrhea	Recovery	Fatal	Autopsy	Head Examined	One or Both Ears Infected	One or Both Mastoids Infected
Acute Intestinal Intoxication																									
1928	41	22	19	10	3+5	27	39	39	26	15	16	25	16	30	24	1	3	29	39	21	20	5	5	2	2
1929	127	95	32	12	108	122	79	89	111	16	95	33	22	89	71	1	1	76	121	71	56	18	15	9	6
Total	168	117	51	22	111 & 5	149	118	128	137	31	111	58	38	119	105	2	4	105	160	92	76	23	20	11	8
Controls																									
1928	42	27	15	16	9	12	28	26	28	14	20	21	17	32	33	7	7	29	39	24	18	6	4	3	3
1929	31	21	10	7	11	8	12	3	22	7	23	7	8	17	14	..	2	10	23	23	8	2	2	1	1
Total	73	48	25	23	20	20	40	29	50	21	43	28	25	49	47	7	9	39	62	47	26	8	6	4	4

Cultures were also made from the stools; in only two of these was an organism picked up from the nose, throat or ear the same as the organism picked up from the intestine. There was, therefore, no correspondence between the bacteriology of the infection in the upper respiratory tract and that in the intestinal tract.

Each available serum was tested for its agglutination power against organisms of possible pathogenic significance found in the stool. In the series of 1928, the blood showed positive agglutination power in nine infants against an organism found in the stool. In twenty-three cases, agglutinins were demonstrated for one of the allied group of intestinal organisms. There was, therefore, surprising evidence of reaction on the part of the blood stream to the infection found in the intestinal tract.

While the serologic work on the series of 1929 is not completed, the evidence that the infection is primarily intestinal seems to have even firmer basis.

Table 4.—*Incidence of Hemolytic Streptococci*

	Series of 1928			Series of 1929		
Acute Intestinal Intoxication						
Number of ear examinations	13	..	....	18	...	....
Number of ear examinations that yielded hemolytic streptococci	..	8	....	...	9	....
Per cent positive	..	..	61.5	...	...	50.0
Number of nasopharyngeal examinations	19	..	....	119	...	....
Number of nasopharyngeal examinations that yielded hemolytic streptococci	..	11	....	...	46	....
Per cent positive	..	..	57.9	...	...	41.0
Number of throat examinations	35	..	....	116	...	....
Number of throat examinations that yielded hemolytic streptococci	..	24	....	...	76	....
Per cent positive	..	..	68.5	...	...	65.5
Total examinations	67			253		
Total positive		43			131	
Controls						
Number of ear examinations	8	..	....	2	...	....
Number of ear examinations that yielded hemolytic streptococci	..	4	....	...	0	....
Per cent positive	..	..	50.0	...	...	0
Number of nasopharyngeal examinations	9	..	....	29	...	....
Number of nasopharyngeal examinations that yielded hemolytic streptococci	..	3	....	...	11	....
Per cent positive	..	..	33⅓	...	...	37.9
Number [illegible]	24	..	....	31	...	....
Number [illegible]	..	16	....	...	26	....
Per cent positive	..	..	66.6	...	...	83.9
Total examinations	41	..	....	62	...	....
Total positive	..	23	....	...	37	....

About one third of the serums have given marked agglutination with *B. dysenteriae* Sonne, while other serums have yielded suggestive results with other bacterial species.

The Type of Infant Exhibiting Acute Intestinal Intoxication.—The reader is referred to a paragraph on this point by Dr. Brown,[2] already quoted. A combined table shows that 117 infants were described as well nourished and 51 as poorly nourished.

First Symptoms.—For a considerable period the medical officer admitting to the infant ward has had a routine series of questions regarding the patient's history to which he must obtain a reply at the time of the admission. One of these reads, "Did the present illness start with a cold?" Our tables show a "cold" as the initial symptom in only 22 out of a total of 168 cases. Indeed, it is remarkable that a large proportion of these histories read, "Did not have a cold before the illness began and no member of the family had a cold."

Condition on Admission.—The majority of the patients were toxic at the time of admission. Attention is drawn to the remarkable number in whom no signs of nasopharyngeal or aural infection could be noted. It constitutes an argument in favor of the conception that upper respiratory infection is not the essential cause of acute intestinal intoxication.

That certain other infants—a very small number—developed typical acute intestinal intoxication signs and symptoms in the hospital with coincident upper respiratory infection in no way detracts from the foregoing deduction.

Attention is also drawn to the exceedingly small number of infants in this series who exhibited enlargement of the cervical glands.

Ear Drums Normal Throughout Illness.—The most striking clinical observation is the frequency with which an infant is admitted in an extreme state of acute intestinal intoxication without any evidence of infection in its ears, nose or throat. Table 3 shows that out of 168 admissions, 111 had no demonstrable ear, nose or throat infection. It shows that 63 had no ear infection and 130 had no nasal infection during the course of their stay in the hospital. It also shows that of the 20 infants who came to autopsy, 9 had no infection in either ear and 12 had no infection in either mastoid. Two infants developed clinical mastoiditis during their stay in the hospital. It is therefore reasonable to assume that ear or mastoid infection could not be the cause of the acute intestinal intoxication.

Ear Drums Normal Until Just Before Death.—Reference has been made to the fact that in a considerable percentage of the 168 cases of acute intestinal intoxication in 1928 and 1929 both ear drums were normal at the last recorded examinations, and that, in a number of patients who died, middle ear abnormality was not detected at autopsy.

In the accompanying tables, the remaining ears have been classified as infected. But this does not mean that all these were infected—it does mean that they all showed an observable change from the normal.

In making these observations it was remarkable how shortly before death the ear drums, which had up to then maintained their normal luster, would change to a grayish color with complete loss of luster, and a very slight fulness would appear in the posterosuperior quadrant, rarely obscuring at all any part of the malleus. The condition was usually the same in the two ears. Sometimes incision of this bulge resulted in the escape of a drop of cloudy material that occasionally produced an organism on culture. The colon bacillus was found in the ears of five infants of the series of 1928.

Even when the culture has been positive, I do not believe that the observed change postulates infection. There is absolutely no evidence in the tissues of reaction to infection. The tissue cells are dying; they are incapable of response. At the same time the eyes of the patient are glassy and sticky; the mouth is dry; the patient is dying. The peculiar appearance of the drum head is but a part of the general anhydremic picture.

Several times at autopsy the pathologist has described stomach contents in the nasopharynx and the same material in the eustachian tubes and middle ears and on one occasion he demonstrated bile in the middle ears. It may be remarked once more that this middle ear condition is, as a rule, bilateral.

I am therefore of the opinion that this change is an antemortem phenomenon due to the forcible ejection by sneezing, crying, coughing or vomiting of pharyngeal contents up eustachian tubes which have lost their resilience. When mastoid infection exists, it is the result and not the cause of the child's lowered condition.

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[2] Brown, Alan, et al.: Etiology of Acute Intestinal Intoxication of Infants, Preliminary Report, South. M. J. 23: 107 (Feb.) 1930.

Otitis Media Developing During Illness.—It is exceedingly easy to produce abnormal appearances in an infant's ear drum by manipulation. It is essential, therefore, that, in the investigation of such a problem as this, the examination and care of the infant's ears should be in the hands of a careful otologist.

In spite of such care, it is widely admitted that an overwhelming majority of infants sick in an infant ward for any length of time develop otitis media in one or both ears. Middle ear infection is of frequent occurrence in infants, particularly in those with lowered resistance from acute or chronic disease.

In table 3 it is shown that in 105 (62 per cent) of 168 cases of acute intestinal intoxication one or both ears became infected while in the hospital; and that in 47 of the 73 control cases (64 per cent) one or both ears were infected. Therefore the incidence of otitis media was no greater in the acute intestinal intoxication group than in the remainder. The controls were not a great number. The exact incidence of otitis media is difficult to obtain in any really active children's hospital. A general statement may be made, however, that middle ear infection occurs in those patients who remain a long time in the hospital just as frequently as it does in those suffering from acute intestinal intoxication or perhaps more frequently.

Another observation acceptable to all is that ordinary infants with otitis media are irritable or slightly drowsy but not toxic.

I do not believe that chronic mastoiditis can exist in an infant without apparent evidence in the middle ear.

Observations from the Autopsies.—The statement has been made by several writers that in recent years all patients presenting the clinical picture of acute intestinal intoxication have mastoiditis, paranasal sinusitis or both as the underlying cause of their disturbance.

My experience (table 3) is quite different. One hundred and eleven patients presented the typical picture of severe acute intestinal intoxication without any demonstrable upper respiratory infection.

Mastoid Antrum Puncture for Diagnosis.—Following a suggestion that the mastoid antrum of the infant could be safely aspirated for diagnosis or latent infection, Dr. L. J. Dill and Dr. C. E. Snelling did the procedure according to the technic advised. They performed the operation only on cadavers and immediately prior to autopsy. Their conclusion from a series of sixty-six punctures is that the procedure is neither safe nor infallible.

Observations from Operation.—It has been stated that mastoid operation or antrotomy has been effectual in stopping the course of the disease. While this study was being pursued, thirteen patients were submitted to operation on both mastoids. These were all severely toxic and presented no clinical evidence of mastoiditis. The operations were distributed among the otolaryngologic staff. Every care was taken in the technic. A few operations were done under a general anesthetic, but the majority under a local anesthetic. The postoperative care was carried on by the operator. As a result of this painstaking work, I believe that, in spite of the fact that these patients were very poor operative risks, no child's death was in any way hastened by the operation.

Cloudy material was found in the antrums of nine of these thirteen infants. In some the mastoid wounds healed satisfactorily before death and in others the wounds were in the course of healing. Eventually, however, only one recovered. I believe that this constitutes considerable evidence in favor of the view that the mastoid infection was not the cause of the toxemia.

The united view of the staff of this hospital is that none of these mastoid antrums or mastoids showed the picture of reaction of the bone cells to infection which we are accustomed to see in acute mastoiditis. Pus we admit. Swelling and infiltration of the mucosa we admit. Also some cloudy material in a few small cells at the periphery of the antrum. But not typical mastoiditis. There was so little evidence of local trouble in our cases that we do not believe that such a small latent infection trapped in the antrum can be accountable for such profound general symptoms.

Operation is indicated if an infant has typical mastoiditis; but operation is not necessarily urgent, even in the presence of an acute streptococcic infection. The average infant suffering from acute intestinal intoxication is close to death, and operation is to be avoided if possible. Our medical staff has now seen so many sufferers from this disease with normal middle ears and mastoid antrums that it refuses to allow the mastoids of infants with acute intestinal intoxication to be operated on unless they exhibit true clinical mastoiditis.

Incidence of Intestinal Signs and Symptoms.—It has been held that an infection in the ear may be responsible for diarrhea, vomiting and loss of weight in infants. My impression is that it can cause a mild degree of these, but not the acute type that occurs in acute intestinal intoxication. As a check on this argument, the case histories of all the infants of 2 years of age and under who have had a mastoid operation performed have been studied to see whether diarrhea, vomiting or loss of weight occurred in them. In 133 consecutive cases, one or more of these symptoms was noted in only 18 patients. Vomiting without diarrhea or loss of weight occurred in 9. Diarrhea, but neither vomiting nor loss of weight was found in 1. Loss of weight without diarrhea or vomiting was found in 5. Diarrhea and vomiting occurred in 1. Diarrhea and loss of weight occurred in 1. Vomiting and loss of weight occurred in none. Diarrhea and vomiting and loss of weight occurred in 1.

It was surprising how frequently it was mentioned that the child was somewhat constipated. The vomiting was never severe, and it was generally noticed as a slight regurgitation following a spell of coughing. Our conclusion, therefore, from this control series is that mastoiditis, per se, in infants is rarely responsible for these symptoms.

SUMMARY

1. Many authors believe that infection in the mastoid antrum is the cause of acute intestinal intoxication in infants.
2. Our medical staff believes that the type of the disease seen in Toronto is the same as that which exists in other parts of Canada and the United States.
3. Study of the disease has been pursued seriously for five years. For the last two years a large body of workers have cooperated.
4. The onset of the disease is rarely characterized by a "cold."
5. The great majority of the infants were without any clinical evidence of an upper respiratory infection at the time they were toxic.
6. Many infants remained without any ear infection throughout the whole course of the illness.
7. Accumulations or infections found in the mastoid antrums of infants at autopsy are ante mortem in origin.

8. Both ear drums of many showed abnormality immediately preceding death. This change is an antemortem phenomenon due to forcible ejection up to the eustachian tubes. When mastoid infection exists, it is the result and not the cause of the child's lowered condition.

9. Mastoid antrum puncture for diagnosis of latent mastoiditis is not to be recommended.

10. Bilateral mastoid operation as a cure for the disease was a failure. Operation is to be postponed as long as possible.

11. The autopsies of the two intensively studied series of cases of acute intestinal intoxication show that mastoid infection was not common.

12. There was no correspondence between the bacteriology of the infection in the upper respiratory tract and that in the intestinal tract.

13. Evidence is being accumulated to show that the disease is of intestinal origin.

CONCLUSION

Infection of the mastoid antrum is not the cause of acute intestinal intoxication in infants.

SCURVY IN ADULTS

ESPECIALLY THE EFFECT OF FOOD RICH IN VITAMIN C ON BLOOD FORMATION *

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Scurvy in adults in large centers of population is infrequent but not rare. Outbreaks occurred among both the civil and the military population of certain countries[1] during the World War, but since 1920 only reports of a single case or small groups of cases appear in the literature.[2] Öhnell[2] and Shattuck[2] remark that the disease is perhaps more frequent than is supposed and that cases, especially in latent form, often are not recognized. Nine cases of scurvy in adults, eight of which were males, have recently come under our observation. The occurrence and certain precipitating factors of the disease, together with observations on the alleviation of the anemia of scurvy, comprise the subject matter of this paper.

OCCURRENCE OF SCURVY AND CERTAIN PRECIPITATING FACTORS

With the single exception of Öhnell,[2] who records the occurrence of scurvy in sixteen females out of the twenty-two cases he observed in Sweden, the other recent reports[3] concerning scurvy in adults deal largely with males over 50 years of age; men who live alone and whose subsistence depends on their own culinary inclinations. Meulengracht[2] defines the condition as "bachelor scurvy." This was essentially the state of affairs for seven of our eight male patients who were all over 50 years of age. The diets of our patients had been ones prepared largely from flours and often composed of food purchased at a store in a form ready to eat. These diets contained little or none of the foods rich in vitamin C; i. e., vegetables, fruits and certain animal tissues.

Poverty plays an important rôle in the choice of diet, although aversion to foods rich in vitamin C may be the reason given for an abnormal diet. Of rather rare occurrence is the development of scurvy from a prolonged strict diet provided for an organic disorder such as duodenal ulcer. Davidson[2] has reported such an instance. Our female patient developed scurvy seven years after being placed on a milk and cracker diet for gastric ulcer when 27 years old. She developed a psychosis and, although the symptoms associated with ulcer vanished, she continued to take a diet similar to the one originally prescribed. Another patient chose for over a year an ill balanced diet sparing in fruits and vegetables. He then took of his own volition, because of a tendency to diarrhea, a diet consisting of only boiled milk and white flour biscuits ("Uneedas"). The patient continued this regimen for about a month, when he developed acute bronchitis. As the bronchitis subsided, slight but definite signs of scurvy developed. They rapidly disappeared when he was given an appropriate antiscorbutic diet. A single instance is reported in the literature in which scurvy followed persistent vomiting in pregnancy.[4]

It is important to appreciate that ill health may be produced by the deficiency of a food factor in much smaller amounts than that necessary to create the typical syndrome associated with its lack, as has been so well discussed by McCollum.[5] It is recognized that conditions due to vitamin deficiencies and due to a lack of certain hormones are brought forth or intensified under various adverse conditions. Infectious processes, chronic fatigue and excesses of various sorts may precipitate a deficiency disorder when states of nutritional instability are present. Individuals with nutritional instability may have the appearance of health but usually lack a normal sense of well being. Infections undoubtedly can precipitate in such persons typical syndromes of a deficiency disorder and probably more often conditions that are not well recognized as being due to abnormal nutrition. An instance of scurvy being

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[3] Meulengracht, Norgate, McClelland, Bullowa, Shattuck and Carr (footnote 2).

[4] Swanson (footnote 2).

[5] McCollum, E. V., and Simmonds, Nina: The Newer Knowledge of Nutrition, ed. 2, New York, MacMillan Company, 1929.

brought forth by an infection has already been cited in the case of the patient who developed bronchitis. A similar reaction has been noted in the experimental scurvy of guinea-pigs.[6] Another clinical example is as follows: A man, aged 60, entered the hospital because of bronchopneumonia and a fractured rib resulting from a recent injury. He was somewhat overweight and did not have the appearance of chronic ill health. The day after admission there developed a large ecchymosis over the left flank extending to the region of the broken rib. At this time the ecchymosis was thought to be dependent on the recent injury. The following day, however, a similar large area of ecchymosis appeared in the right flank, and a few hemorrhagic lesions appeared on the gums and about the buccal mucous membrane. Similar lesions also developed on the lower part of the right leg. It was then learned that for years his diet had consisted chiefly of coffee, pastry, potato, and bread and butter, with only small amounts of meat or fish, and that he ate but rarely green vegetables or fruit. He was given about 400 cc. of orange juice daily, together with a diet composed chiefly of concentrated carbohydrate food of the variety containing little or no vitamin C, and within a week the lesions attributed to scurvy entirely disappeared. Cases of this sort, in which an infection brings forth a definite syndrome because of an inadequate supply of a dietary factor for a prolonged period of time, are unusual, but serve to emphasize the importance of a well balanced diet with optimal amounts of all food factors for the maintenance of health.

The presence of arteriosclerosis in individuals partaking of an ill balanced diet for a long time may perhaps favor the development of a deficiency disorder. There is some evidence at hand to suggest that pernicious anemia and pellagra patients with arteriosclerosis are apt to require greater amounts of effective substance to alleviate their deficiency than similar patients with normal blood vessels. It has been suggested[7] that arteriosclerosis may enhance the development of scurvy, particularly in elderly men partaking of suboptimal amounts of vitamin C, because it was noted to be a feature of many cases of scurvy in adults. Cardiovascular damage, chiefly arteriosclerotic in type, was present to a greater or lesser degree in all of our recent eight cases of scurvy in elderly males. Perhaps thickening of the blood vessels prevents the tissues from receiving nutritious elements as readily as when such a condition is absent.

It is, of course, difficult to diagnose cases of "latent" scurvy unless some infectious process or other circumstance occurs that precipitates the typical disease. It is suspected, however, that cases of scurvy in adults occur more frequently than is commonly recognized and will be detected if relatively minor symptoms, such as poor appetite and loss of energy, are looked for and the dietary history is carefuly evaluated.

THE ANEMIA OF SCURVY

A study of the literature shows that anemia of variable degree occurs in a large percentage of adults with scurvy. It also occurs in infantile scurvy and is of regular incidence in the experimental scurvy of guinea-pigs.[8] Scurvy in adults is apt to develop following a prolonged period of nutritional instability and thus manifest a chronic condition. Chronicity apparently favors the production of anemia. Our observations on the blood are in accord with those of numerous other physicians.[9] In a large group of cases of scurvy in adults one may expect to find about 35 per cent with red blood cell counts between 2 and 3 million per cubic millimeter, a similar number with between 3 and 4 million red blood cells per cubic millimeter, and the remainder showing slight or no anemia with red blood cell counts above 4 million per cubic millimeter. The hemoglobin is reduced so that a color index of about 1 is the rule. Achromia of the red blood cells is not a feature, but slight central pallor of these cells is frequent. If hemorrhage has been an important factor in the production of the patient's anemia, a greater degree of achromia and a lower color index will occur. Abnormal variation in size is more pronounced than variation in shape. Occasionally there may be a sufficient number of nonachromic cells slightly larger than normal to suggest the possibility of pernicious anemia. About 1 per cent of the cells are usually polychromatophilic, and nucleated erythrocytes may appear in the peripheral blood. The blood platelets occur in from normal to moderately increased numbers. The leukocytes in uncomplicated cases are usually between 4,000 and 6,000 per cubic millimeter. A slight lymphocytosis with about 3 per cent atypical lymphoid cells frequently occurs. Monocytes are not increased. A few myelocytes are often to be observed. Polymorphonuclear eosinophils are not absent but basophils are seldom present.

It is well known that an antiscorbutic diet causes the anemia to lessen and to do so frequently with amazing rapidity, but there appears from the literature to be some confusion as to the exact reason for anemia in scurvy. Undernutrition and intercurrent infection have been held to be,[10] and undoubtedly are, contributing factors. Loss of blood, especially from the intestinal tract, has been considered by some individuals as the most important cause for the anemia. However, since anemia occurs without evidence of hemorrhage of large amount, some other factor would seem to be fundamental. The observations given farther on lend support to the idea that the anemia may be due to insufficient red blood cell production, as Hojer[8] and others have suggested. Our observations furthermore suggest that the inadequate function of the bone marrow may be directly dependent on a chronic lack of vitamin C, although in any given case some other factor or factors may intensify the process.

OBSERVATIONS ON THE RESPONSE OF THE RETICULOCYTES AND TOTAL RED BLOOD CELLS

Foods rich in vitamin C can rapidly effect erythropoiesis in scurvy for we have observed five cases in which a definite rapid increase of the reticulocytes occurred as a response to a diet rich in this vitamin. Data relative to the first patient, recorded in figure 1, show that the reticulocytes began to increase on the third day after he partook of a diet that was chiefly composed of fruit and green vegetables and that contained no animal food except boiled milk. They reached the peak of their rise on the eighth day and returned to normal by the fifteenth day. The response of this patient's reticulocytes was entirely similar to that observed in a second patient treated in a similar manner and in three other patients treated as described later on. Figure 2 shows the response in one of these other patients. The reticulocytes in all instances began to increase on the third or fourth day and then reached the peak of their rise on from the fifth to the eighth day. The height of their rise probably depends in some measure on the amount of potent material fed, the degree of anemia and the precise state of the patient. This state of affairs is comparable to what occurs with the administration of potent substances in pernicious anemia.[11] The response of the reticulocytes was coincident with cessation of hemorrhage in the scurvy patients. There was associated with this reaction of the bone marrow an increase of the red blood cells which usually continued rapidly to a normal level concomitant with a pronounced improvement in the health of the patient.

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[6] Nassau, E., and Scherzer, M.: Scurvy and Infection, Klin. Wehnschr. **3**: 314 (Feb. 19) 1924.

[7] Minot, G. R.: Some Fundamental Clinical Aspects of Deficiencies, Ann. Int. Med. **3**: 216 (Sept.) 1929.

[8] Meyer, A. W., and McCormick, L. M.: Studies on Scurvy, Stanford University Publications **2**: 199 (number 2) 1928. Liotta, D.: Experimental Scurvy: III. Modification of the Cell Elements of the Blood, Arch. di farmacol. sper. **36**: 76, 1923. Hojer, J. A.: Studies in Scurvy, in Almquist and Wiksell's Boktryckeri, Uppsala, 1924.

[9] Meulengracht (footnote 2). Shattuck (footnote 2). Leitner, P.: Beiträge zur Haematologie und Klinik des Skorbuts, Wien. Klin. Wehnschr. **31**: 978, 1917. Eichorst, E. L. H.: Trattato di Patologie eterapia Speciale Medica (Milano. Soc. Ed.) **4**: 73, 1913-1914. Hess, A. F., and Fish, Mildred: The Blood, the Blood Vessels and the Diet, Am. J. Dis. Child. **8**: 385 (Dec.) 1914.

[10] Hansmann, T.: Das Blutbild bei Skorbut, Ztschr. f. klin. Med. **93**: 346, 1922. Keefer, C. S., and Yang, C. S.: The Rôle of the Various Vitamins in the Production of Anemia, Nat. M. J. China **15**: 419 (Aug.) 1929.

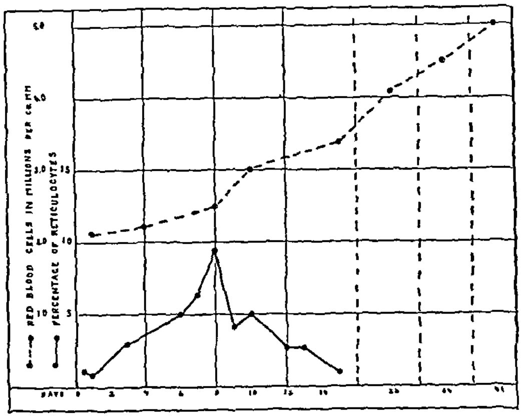

Fig. 1.—Response of the reticulocytes to a diet rich in fruit and green vegetables, without liver or iron, in a case of scurvy in a man.

Certain anemias, appropriately called dietary anemias because they are associated with the patient partaking of an inadequate diet for a prolonged period of time, chronic chlorosis, and anemias of ill defined origin particularly occurring in women and often associated with gastric anacidity, as well as some other anemias, such as those due to chronic blood loss, lessen rapidly following the administration of large doses of iron. Therefore, it was thought that the anemia of scurvy might be alleviated by suitable iron therapy, and, like patients with anemia benefited by iron, might show a prompt response of reticulocytes to this element. Accordingly, two elderly male patients with typical scurvy were treated as follows:

They were given daily a diet deficient in vitamin C, composed of boiled milk and white flour biscuits. During six days there was no change in their reticulocytes. Then for six days in one case and for seven days in the other, 6 Gm. of iron and ammonium citrate (U. S. P.) were added to the diet. When the iron was omitted the same diet was continued but with the addition each day of 575 cc. of orange juice.

The results that occurred in the first patient given this treatment are recorded in figure 2. There was no significant quantitative change in the circulating reticulocytes within eight days following the commencement of iron therapy. However, after the patient had enjoyed the fruit juice for three days the reticulocytes began to increase from a stationary level of about 2.5 per cent. They reached a level as high as 9.7 and 9.9 per cent on the fourth and fifth day, respectively, and then rapidly fell to a low level during the following three days. During the twelve days that the patient took food lacking in vitamin C there was a drop in the hemoglobin from 73 to 55 per cent, and the red blood cells fell from 3.8 to 2.5 million per cubic millimeter. Striking, rapid improvement, however, occurred soon after the administration of orange juice, so that in twenty-four days after the patient first received this fruit juice the red blood cells were 4 million per cubic millimeter and the hemoglobin was 90 per cent.

The results obtained in the second case were similar. However, the anemia increased very little during the thirteen days that food lacking in vitamin C was taken by the patient. The reticulocytes increased from a stationary level of about 1 per cent, maintained for six days before and ten days after the commencement of iron therapy, to 3 per cent on the third day that orange juice was given. Their rise persisted so that there were between 4 and 5 per cent on the sixth, seventh and eighth days, followed by a return to a low level on the twelfth day. There was slow but progressive decrease of the anemia, and after forty-one days of an antiscorbutic diet the patient's hemoglobin had increased from 55 to 83 per cent and the red blood cells from 2.1 to 3.8 million per cubic millimeter. The relatively slight response of this patient's reticulocytes, especially in view of the relatively low level of his red blood cells and the continued retarded production of blood that followed, can be attributed to the fact that the patient suffered from cystitis, hypertension, arteriosclerosis and a mild degree of lead intoxication. Infections and poisons are known to inhibit the response of the bone marrow to substances potent for a given type of anemia. The four other patients whose reticulocytes were observed to respond to food rich in vitamin C had no complication except moderate arteriosclerosis. There was a rapid but temporary increase of reticulocytes in these four patients with a quick regeneration of hemoglobin and red blood cells. Apparently a maximal production of reticulocytes occurred because they increased to the same approximate numbers as are found at comparable red blood cell levels in pernicious anemia following the administration of optimal amounts of effective material.

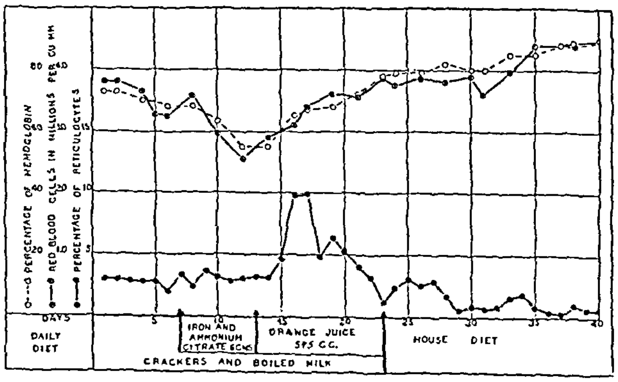

Fig. 2.—Absence of significant quantitative alteration of the reticulocytes to large doses of iron, but a distinct prompt response following the administration of orange juice, in a case of scurvy in a man.

There are several reasons why one may attribute the reticulocyte response in the two patients given iron and later food rich in vitamin C to material contained in the food rather than to a delayed reaction to iron. In the first place, observations on more than twenty-five patients in this clinic and studies by Schulten [12] and by Keefer and Yang [13] as well as by others indicate that when the red blood cells are below 3 million per cubic millimeter the response of the reticulocytes to even considerably smaller doses of iron than our patients received will commence within eight days and usually within five days after iron therapy is started. More than eight days had passed after iron had been given before the reticulocytes started to rise in either of the two scurvy cases. In the second place, if the response to iron is delayed, the reticulocytes do not reach the peak of their rise rapidly, as occurred in the first case. The relatively weak response in the second case sustained over a longer period of time was not a delayed response and is the type of response to be expected when suboptimal amounts of potent material act on the bone marrow or when the effect of optimal amounts are inhibited by infection or other complications. Furthermore, the response of the reticulocytes in these two patients is entirely comparable to that in each of the other two scurvy cases in which the reticulocytes were observed daily and which responded to food rich in vitamin C and to that in one case to be referred to treated with liver pulp.

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[11] Minot, G. R.; Murphy, W. P., and Stetson, R. P.: The Response of the Reticulocytes to Liver Therapy, Am. J. M. Sc. 175: 581 (May) 1928.

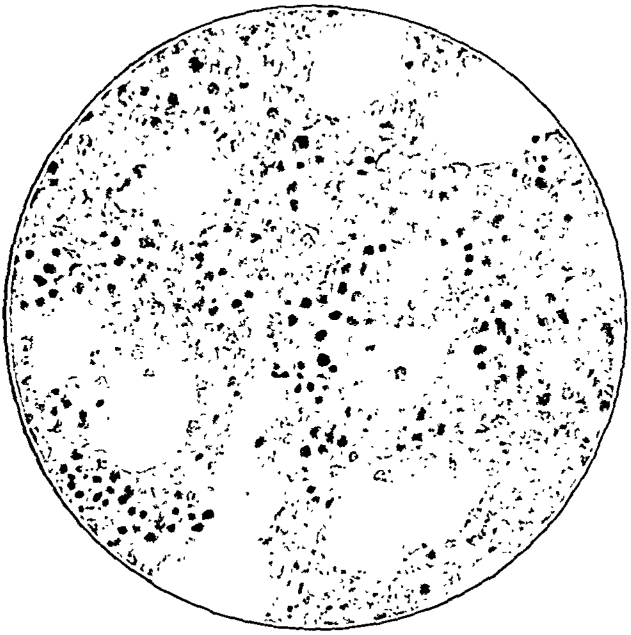

Fig. 3.—Appearance of bone marrow from an elderly man with scurvy; reduced from a photomicrograph with a magnification of 400 diameters. There are scattered foci of nucleated red blood cells and a moderate number of fat cells.

A liver extract potent for pernicious anemia was prepared in such a way that it could not contain vitamin C. This material was shown to be ineffective on the anemia of scurvy. Two patients, on a scurvy producing diet, with red blood cell counts of about 2 milion per cubic millimeter, showed no response of their reticulocytes and showed a slight decrease in the total number of red blood cells during ten days when they were each fed sufficient liver extract to cause a prompt response in pernicious anemia. The feeding of 240 Gm. a day of fresh raw liver pulp promptly produced a reticulocyte response with 8 per cent reticulocytes at the peak of their rise, and produced rapid regeneration of red blood cells in one of the cases, which is attributed to the fact that fresh liver is rich in vitamin C. The anemia of the other patient lessened rapidly when he took an ordinary well balanced diet containing plenty of vitamin C.

The observations recorded indicate that food rich in vitamin C can cause a prompt response of the reticulocytes and a rapid regeneration of blood in scurvy, and evidence favors the conception that neither large doses of iron nor the substance effective in pernicious anemia can do so. This information lends support to the idea that the fundamental cause of anemia in scurvy is the lack of vitamin C in the diet, although undoubtedly hemorrhage, infection, undernutrition and other factors may complicate the picture. It would appear, thus, as if vitamin C rather specifically affected the bone marrow of the patient with scurvy.

THE BONE MARROW IN SCURVY

There are only a few accounts in the literature of the state of the human scorbutic bone marrow. In their textbooks, MacCallum,[14] and Naegeli [15] described the bone marrow as having lost its blood-forming elements and as having become converted into an edematous fibrous tissue. Vedder,[16] on the other hand, states that the bone marrow is consistent with the type seen in secondary anemia from many causes. He writes that the fat disappears and that the marrow shows marked cellular hyperplasia.

Before treatment a specimen of sternal bone marrow was obtained by bone marrow puncture from the second patient given iron. A photomicrograph of this bone marrow is reproduced in figure 3. The tissue shows moderate cellular hyperplasia and contains a few isolated fat cells. There are scattered small varying-sized groups of nucleated red blood cells. Many myelocytes are present, among which are several of the eosinophilic variety. Adult polymorphonuclear leukocytes and megakaryocytes occur in moderate numbers. There is no evidence of fibrosis.

A specimen of sternal bone marrow was also removed at the peak of the reticulocyte response from the second patient, treated with only a diet rich in vitamin C. This specimen, pictured in figure 4, in contrast to the one shown in figure 3, shows quantitatively more nucleated red blood cells. Mitotic figures among the precursors of these cells were not apparent in the specimen (fig. 3) obtained from the patient prior to any treatment, whereas, in the specimen obtained at the time of the peak of the reticulocyte rise, a few mitotic figures appear in each field of the microscope.

Thus the bone marrow alterations depicted by these two specimens are characteristic of what is spoken of commonly as secondary anemia. No definite conclusions, of course, can be drawn as to the comparative histology of the bone marrow before and during treatment; but the character of the bone marrow suggests the possibility that when vitamin C has been chronically deficient its replenishment in the body can promote in some fashion the development of nucleated erythrocytes. In pernicious anemia, potent material apparently permits maturation of the megaloblasts in the bone marrow.

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[12] Schulten, Hans.: The Treatment of Hypochromatic Anemia with Large Doses of Reduced Iron, München. med. Wchnschr. **77**: 355 (Feb. 28) 1930.

[13] Keefer, C. S., and Yang, C. S.: Anemia of Undernutrition; Report of Cases with Results of Treatment, Nat. M. J. China **15**: 701 (Dec.) 1929. Yang, C. S., and Keefer, C. S.: Liver and Iron in the Treatment of Secondary Anemia, Nat. M. J. China **15**: 721 (Dec.) 1929.

[14] MacCallum, W. G.: A Textbook of Pathology, Philadelphia, W. B. Saunders Company, 1928, p. 927.

[15] Naegeli, O.: Blutkrankheit and Blutdiagnostik, Berlin, Julius Springer, 1923, p. 364.

[16] Vedder, E. B.: Scurvy, in Tice: Practice of Medicine, Hagerstown, Md., W. F. Prior Company, Inc. **9**: 172, 1929.

which leads to a reticulocyte response. In scurvy and in anemias responding to iron perhaps the effective substance hastens maturation of the normoblasts, which, under comparable conditions, permits a reticulocyte response that we have noted tends to occur somewhat more rapidly than in pernicious anemia. The increased rate could be accounted for by the fact that the normoblast is a less primitive cell than the megaloblast, so that the former could maturate sooner than the latter. At all events, the increased activity of the bone marrow in scurvy is clearly reflected in the peripheral blood by the reticulocyte response to food rich in vitamin C.

Knowledge has been advanced rapidly in recent years concerning the importance of food in alleviating anemia and the influence of inadequate diets and digestive processes in the causation of anemia. Known vitamins play no rôle in the regeneration of the blood in pernicious anemia, and at least are not required for regeneration of blood in many cases of secondary anemia. If, however, an anemia can be related to a vitamin deficiency, it oftentimes will be decreased by the administration of material rich in the vitamin, the lack of which occurs in the given patient. Such appears to be the case in pellagra, in chronic vitamin A deficiency and in scurvy.

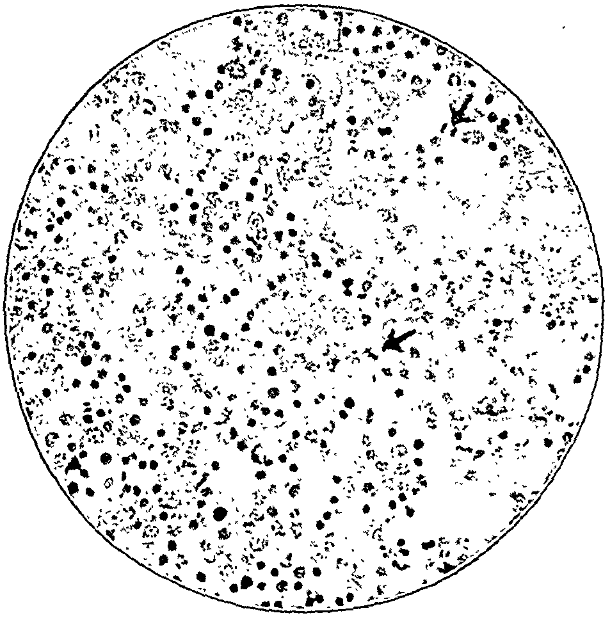

Fig. 4.—Appearance of bone marrow from an elderly man with scurvy at the peak of the reticulocyte response induced by orange juice; reduced from a photomicrograph with a magnification of 400 diameters. Note the large numbers of nucleated red blood cells. A few mitotic figures are present among the younger forms, some of which are indicated by arrows.

SUMMARY

Nine cases of scurvy in adults were studied. Eight occurred in elderly males.

Scurvy can be precipitated by infectious processes in individuals with certain types of chronic nutritional instability. Arteriosclerosis may favor the development of the disease.

In adults with scurvy, anemia is common and often pronounced. Fruit, green vegetables and fresh liver, foods which are rich in vitamin C, can cause in these patients a prompt response of reticulocytes and rapid regeneration of blood. Neither large doses of iron nor the substance potent in pernicious anemia appear to accomplish these effects.

The bone marrow in two cases of scurvy was examined microscopically. It appears to be of the type that occurs in what is often spoken of as secondary anemia.

Vitamin C apparently can have a specific effect on erythropoiesis when there has been a chronic lack of this vitamin.

PREGNANCY AND LABOR COMPLICATED BY GRANULOMA INGUINALE *

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Professor of Obstetrics, Medical College of the State of South Carolina
CHARLESTON, S. C.

Granuloma inguinale is a disease found chiefly in the subtropics, but during the last ten years sporadic cases have been reported from many localities in this country, especially in the South. In Charleston, S. C., it is fairly common; the genito-urinary department of Roper Hospital informs me that it treats about twenty-five cases a year. Kenneth M. Lynch[1] of Charleston and Meredith F. Campbell[2] of New York are to be credited with the most comprehensive study of this condition that has been made in this country. The organisms that are supposed to be the cause of this disease were first described by Donovan in 1905 and are called Donovan bodies.

The method for demonstrating this organism is as follows: A portion of ulceration is selected where the ulceration appears to be spreading, not healing. Wet dressings of physiologic solution of sodium chloride are applied to this area for about twenty-four hours. The surface is then wiped thoroughly with sponges wet with salt solution, and with a dull curet or the edge of a glass micro-slide the surface is deeply scraped. This material is smeared out on several slides and allowed to dry thoroughly. Leishman's stain is applied to the smear, allowed to stand four minutes, then diluted with one half volume of distilled water and allowed to stand one minute. It is washed quickly with running water and dried with a blotter. The Donovan bodies are found scattered through the specimen but more particularly in the endothelial cells having a bluish bacillary or diplococcus appearance surrounded by a pinkish capsular zone.

The disease begins as a small moist papule, which rapidly ulcerates with progressive and eccentric invasion of the surrounding tissues by an elevated, reddish, often shiny, delicately skinned granulomatous proliferation, superficially ulcerating when moist, cracking when dry. Usually, however, the lesions are moist, and a thick mucoid exudation possessing a peculiar odor is characteristic. The disease shows no tendency to spontaneous healing. The genitals and perigenital tissues are most often involved. The disease apparently spreads by auto-inoculation and peripheral extension. Inoculation by transmission from clothing and friction is the probable explanation of its distribution. It is in no sense a venereal disease, as neither the husbands nor any member of the family of these patients give a history of having had granuloma inguinale. The occurrence of elephantiasis of the genitalia or at times of a leg signi-

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the *American Medical Association*, Detroit, June 26, 1930.

[1] Lynch, K. M.: Granuloma Inguinale, J. A. M. A. **77**: 925 (Sept. 17) 1921.

[2] Campbell, M. F: The Etiology of Granuloma Inguinale, Am. J. M. Sc. **174**: 670-679 (May) 1927.

fies an involvement of the lymph channel. These patients are singularly free from discomfort. An itching or at times a burning sensation plus the presence of the lesion and its accompanying foul discharge constitute the chief complaints. The lesions themselves are but mildly sensitive.

Effect of Granuloma Inguinale on Delivery, Puerperium and Subsequent Health of Mother and Child

Case	Race and Parity	Extent of Lesion and Wassermann Reaction	Delivery	Puerperium	Present Condition
1	Negro; primipara	Ulcerations of perineum and labia; Wassermann negative	Spontaneous; infant normal	Temperature 101 F. for seven days	Mother still under treatment; infant in good health
2	Negro; primipara	Extensive ulcers of perineum and left buttock; Wassermann ++++	Spontaneous; infant normal	Uneventful	Mother recovered; infant in good health
3	Negro; primipara	Ulcerations, symphysis to coccyx 5 in. wide over perineum; Wassermann negative	Spontaneous; infant normal	Temperature 103 F. for two days	Mother's ulcers improved; infant in good health
4	Negro; primipara	Ulcerations of the vulva; Wassermann negative	Premature, 8th month; spontaneous	Uneventful	Mother improved but not entirely recovered; infant died 2 days later
5	Negro; secundipara	Ulcers of the vulva; Wassermann ++++	Spontaneous; macerated fetus	Temperature 101 F. for six days	Mother not improved; claims she delivered a stillborn child 2 years before and had ulcers before that pregnancy
6	Negro; quintipara	Ulcers of the vulva; Wassermann negative	Spontaneous; infant normal	Uneventful	Mother recovered; infant in good health
7	Negro; primipara	Ulcers of the vulva; Wassermann *negative*	Spontaneous; infant normal	Uneventful	Mother recovered; infant in good health
8	Negro; primipara	Ulcers left side of vulva; Wassermann negative	Spontaneous; infant in poor condition	Uneventful	Mother improving; infant died second day, cause undetermined
9	Negro; secundipara	Ulcers and old scar tissue both labia and perineum; Wassermann ++	Spontaneous; lateral episiotomy in old scar tissue; infant normal	Uneventful	Mother recovered; infant in good health
10	Negro; primipara	Ulcers of vulva and elephantiasis left labia, size of grapefruit; Wassermann negative	Not delivered	Mass removed	Patient referred to out patient department for further treatment
11	Negro; quadripara	Ulcers of vulva; Wassermann negative	Not delivered	....	Left hospital against my advice, and am unable to find any further record of her
12	Negro; primipara	Ulcers of vulva; Wassermann negative	Craniotomy; macerated fetus	Pelvic infection, fifteen days' duration	Recovered
13	Negro; tertipara	Ulcers of vulva and perineum; Wassermann negative	Forceps; stillborn infant	Uneventful	Mother improved
14	Negro; quintipara	Ulcers of the vulva; Wassermann *negative*	Spontaneous; infant normal	Temperature 101 F. for seven days	Mother improving; infant in good health

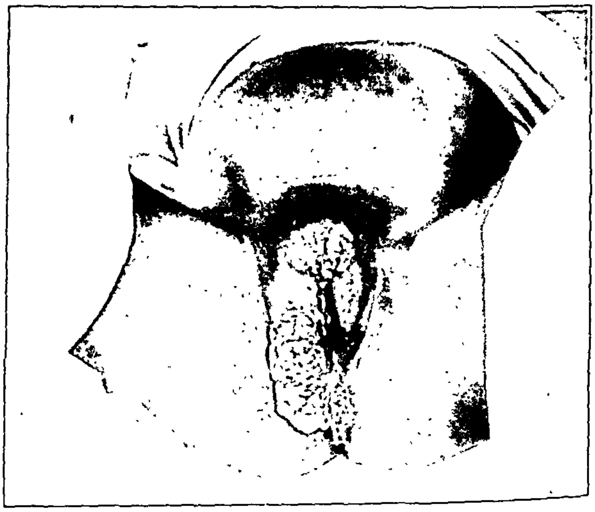
During the last five years I have seen fourteen cases of pregnancy and labor complicated by this condition These patients had typical ulcerations of the vulva or the entire vulvular region, from which exuded a foul, infected discharge that not only bathed the vulva but often extended over the lower part of the abdomen. Confronted with this situation complicating labor, I thought the safest method of delivery was by the natural route, not making either vaginal or rectal examinations. These patients when seen during pregnancy were given the usual treatment of 1 per cent solution of antimony and potassium tartrate intravenously, and local antiseptic dressings. During the puerperium they were kept in an exaggerated Fowler's position.

CONCLUSIONS

1. This series of cases is too small to form the basis for any definite conclusion. However, it seems that there is a tendency to stillbirth and death of infants in granuloma inguinale.

2. Granuloma inguinale is not of venereal transmission, as none of the husbands of these patients were diseased.

3. The Negro race is far more susceptible than the white race.



Appearance of lesions.

4. Under the influence of pregnancy the disease progresses rapidly, probably because of the congestion of the parts; after labor the condition tends to improve.

5. This series of cases shows that the uterus if not traumatized or infected by handling can take care of a great deal of infection.

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ABSTRACT OF DISCUSSION

Dr. John P. Gardiner, Toledo, Ohio: Dr. Wilson is to be congratulated on his delivery of a series of fourteen patients having a skin infection such as this and yet having had no greater mortality rate. There was mortality among the children but I doubt whether that is any more than is to be expected under such conditions. As the Negro is migrating north, and as the incidence of this infection is greater in tropical or subtropical people, it behooves men in the North to watch carefully for this disease. In an examination of approximately 5,000 cases, I have never seen a case of granuloma inguinale. Nevertheless, I am on the watch for it. I doubt whether others in the North, and especially in the Middle West, have seen many cases. However, probably in a few years cases of granuloma inguinale will be reported. Granuloma is seen in the neighborhood of the pudenda in its most common forms. This brings up the question of delivery and what to do in generalized cutaneous infection. I had the thrilling experience this spring of delivering one of my patients at the Toledo Contagious Hospital in the active pus stage of smallpox. The vulva was covered with pustules. Fortunately I had observed the patient during the prenatal period. There was no disproportion, so she was allowed to go into labor normally. The infant was vaccinated immediately, the vaccination took, and the mother and child are now doing well. The child did not have smallpox. In these cases of frank infection, as Dr. Wilson brought out, one of necessity refrains from making any vaginal or rectal examination. It taxes at times the ingenuity of the obstetrician to know what method to pursue in cases of frank cutaneous infection. My personal method, if I have not had the opportunity of making an examination except by external palpation, is to induce labor early, if there is any possibility of a disproportion. If there is no disproportion, the patient may be allowed to go into labor and the obstetrician trusts to the immunity of the individual.

Dr. Carey Culbertson, Chicago: This is a condition which is no longer an oriental disease but has appeared in North America. Most of our Negro patients in the Cook County Hospital in Chicago are from the Gulf states and we see more or less granuloma inguinale—one or more cases every year. The condition has been reported in Philadelphia by Dr. McGlinn. A word should be said regarding the differential diagnosis. There are four lesions creating ulceration of the vulva that are somewhat alike. One of them is tuberculosis, which is not seen often but is seen, particularly in the charitable institutions. Another is syphilis—syphilitic ulceration, broken down gumma, or syphiloma of the vulva; it looks like this erosive vulvitis. The third is carcinoma, probably the most frequent, and the other is granuloma inguinale. The treatment of these various conditions is absolutely different, and this is why the differential diagnosis is important. Syphilis is treated by neoarsphenamine. Tuberculosis may be surgical and it may not be. Granuloma inguinale is not a surgical lesion. One of the worst things is to attempt to extirpate it by operation. The result would be a breaking down and an enormous sloughing. It is treated by injections of a solution of antimony and potassium tartrate. It is very chronic and the cure is slow. Carcinoma is treated by surgery or radium. Occasionally, also, an elephantiasis vulvae will break down and become ulcerated. It is another condition that is seen only in colored women. It is best treated by surgery.

Dr. W. E. Tyson, Detroit: I have used metaphen (the anhydride of 4, nitro-5-hydroxy-mercuri-ortho cresol) a great deal in the cure of chancroid. The ordinary chancroid, particularly on the cervix in the female, is a very difficult thing to treat. I have treated quite a number of them unsuccessfully with a local treatment, but I have used metaphen with great success. I have treated several patients who were pregnant. I do not say that there is any relation between the granuloma inguinale and the chancroid, but it just occurred to me whether the metaphen would have any curative effect in this condition as it does in the chancroid. It is most successful with the chancroid. They are much alike.

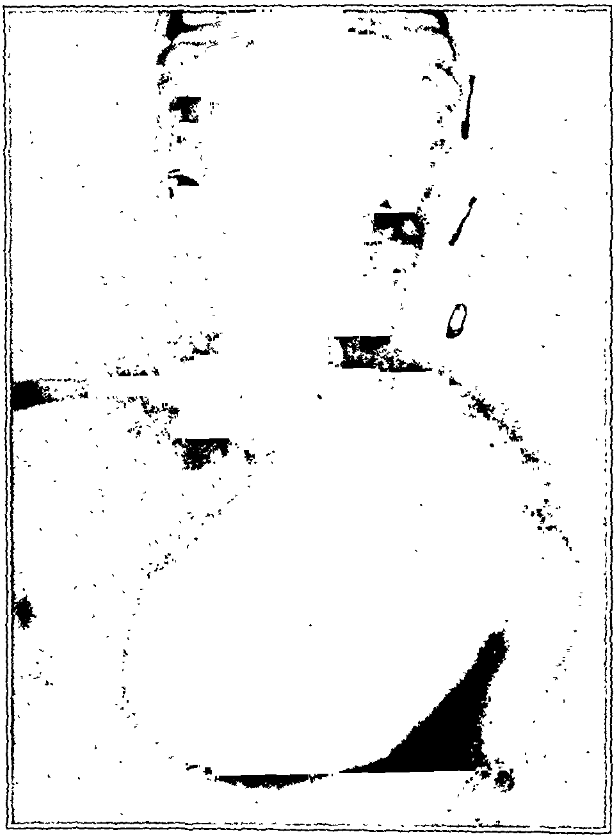
The Diagnostic Clinic at Its Worst.—At its worst, however, the Diagnostic Clinic is a machine, and the patient is automatically passed from one specialist to another and submitted to a series of examinations, so detailed in their nature that it would seem that nothing could be overlooked. The result is a list of so-called "diagnosis"—in reality a list of deviations from the normal, some of which may, and others of which certainly do not have any bearing on the patient's trouble. The unfortunate thing is that only too often the patient undergoes treatment for some of these unimportant conditions and at the same time, because of the lack of some one man who understands the situation as a whole, the real underlying difficulty is entirely overlooked.—Peabody, F. W.: Doctor and Patient, New York, Macmillan Company, 1930.

Clinical Notes, Suggestions and New Instruments

SUCCESSFUL REMOVAL OF A LARGE TERATOMA FROM A NEW-BORN INFANT

Harold A. Rosenbaum, M.D., Chicago

Before the birth of the baby under discussion, the mother was thought by her obstetrician to be carrying a monster. Wisely the obstetrician did a cesarean operation and delivered a baby with a large mass attached to the right perineal and buttock region. This he diagnosed as a meningocele, and a consulting neurologist concurred in the diagnosis. The family was given a hopeless prognosis. When the baby was 18 days old Dr. Louis C. Johnston was called to see her and asked me to see her with him.



Appearance of teratoma.

We found a lusty, crying infant, uncomfortable probably because of the posture necessitated by the large mass mentioned. Her general condition seemed quite normal aside from this mass.

The mass extended entirely from the right side of the perineum and the region of the right buttock. There was so much tension on the anus that there was an almost continual emission of fecal matter. The mass measured 32 cm. in diameter. There was considerable fluid present, but on deep palpation firm bony or cartilaginous tissue could be felt posteriorly toward the coccyx. The skin covering was vascular and bluish.

The knee jerks and the achilles reflex on the right and left were normal, and the thighs, legs and feet were normal. The left buttock fold was normal.

The site and unilateral character of the mass, the normally inervated lower extremities, and the feeling of firm tissue present deep in the mass made us feel that we were not dealing with a meningocele but had to do with a teratoma, and that the baby should be operated on to remove the mass. To exclude the possibility of a loop of intestine coming down into the mass through an imperfect pelvic floor, a series of roentgenograms were taken following a barium meal.

Dr. Johnston operated on the baby, removing the mass, which weighed 2 pounds (1 Kg.) and contained much yellowish fluid. The baby now weighed 7 pounds (3.2 Kg.). The firm tissue which had been felt was diagnosed teratoma on microscopic section. It is interesting to note that almost immediately following the operation the anus began to function normally.

The baby is now 7 months old. She sat alone at 6 months and is in general entirely normal.

4753 Broadway.

AN UNUSUAL CASE OF COMPRESSION MYELITIS WITH POSTERIOR LUXATION OF OCCIPUT[*]

J. Clark Moloney, M.D., and Albert S. Crawford, M.D., Detroit

We report a compression myelitis due to posterior luxation of the occiput. A review of the literature and of the various indexes failed to reveal a parallel case.

History.—A white ex-pugilist, aged 38, came to the clinic, Nov. 23, 1928, complaining of a swollen right knee. It proved to be a neurotrophic joint. A more careful neurologic history elicited the following: When 28 years of age, the patient, as a participant in a prize fight, was struck a terrific blow on the chin; it rendered him unconscious. When he regained his senses, the left side of the body was weak and clumsy and the right leg was numb. The disturbance righted itself in three or four days. He had been "knocked out" about twenty-five times in his career, but never with the same consequences. Ten years later and shortly after the first of the year, 1928, while intoxicated, he fell in a tiled bathroom, striking the back of the neck against the rim of the tub. When he regained consciousness, his left side was again quite useless and clumsy, and the right side numb and "prickly." In four or five days the acute symptoms disappeared. The neck remained stiff. Chiropractic treatments intensified the stiffness and seemed to bring out the original clumsiness on the left and the numbness on the right. Four months later a painless swelling developed in the right knee, and the left side became weaker, slightly spastic and awkward. The right leg could no longer differentiate heat and cold. It was also insensible to pain. Eleven months after the fall in the bathroom, a secondary infection in the swollen right knee brought him to our clinic for treatment.

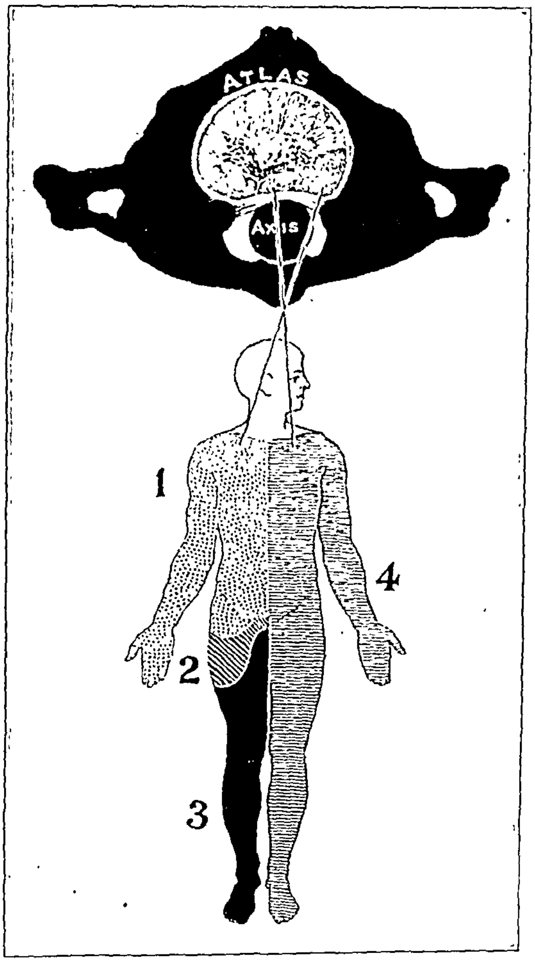


Fig. 1.—Distortion of left anterior aspect of cord, with resultant compression of spinothalamic and pyramidal tracts: 1, hypesthesia; 2, analgesia; 3, anesthesia to temperature; 4, muscular disturbances; weakness, spasticity, atrophy.

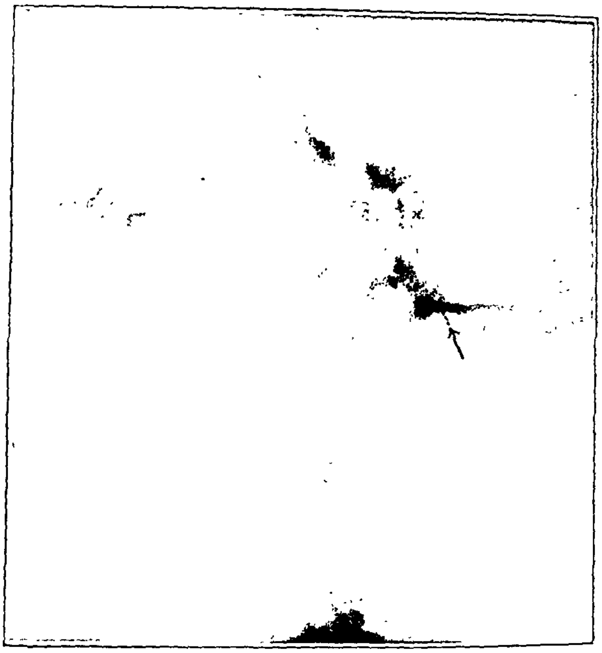


Fig. 2.—Arrow points to iodized oil.

Table 1.—*Measurements of Right and Left Sides*

	Right, Cm.	Left, Cm.
Mid forearm	27	24.5
Mid biceps	22.5	21
Mid calf	29	27

Examination.—On neurologic examination, there was slight but definite atrophy on the left side (table 1). This atrophy was best demonstrated by the Collins dynamometer; he gripped 125 on the right and from 85 to 90 on the left. The reflexes on the left were pathologically increased and were associated with a left ankle clonus, positive Babinski reflex and presence of the other pathologic toe signs. The left foot slapped the floor as he walked. Occasionally a shudder swept over his frame. On the right, pain sense was lost below the first lumbar segment and thermal sense below the twelfth dorsal segment. Between the right fourth cervical and first lumbar segment a hypesthesia existed. The Babinski reflex on the right was capricious. Tactile discrimination, vibratory sense and joint sense were present and equal on the two sides. The right knee was swollen and anesthetic (fig. 1). Laboratory tests, including Wassermann tests of the blood and spinal fluid, were negative.

Roentgenograms disclosed extensive traumatic arthritis with marked deformity of the mid and the upper cervical vertebrae, but were inconclusive as to cervical dislocation (fig. 2). Combined cisternal and lumbar puncture was done.

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[*] Read before the Detroit Society of Neurology and Psychiatry, Jan. 9, 1930.

[*] From the division of neuropsychiatry and the division of neurosurgery, Henry Ford Hospital.

Xanthochromia and the syndrome of Froin were absent.

Treatment and Course.—Two cubic centimeters of iodized poppy-seed oil 35 per cent was left in the cistern, and roentgenograms were taken. Most of the iodized oil remained in the cistern (fig. 2). After this procedure, our patient disappeared from the clinic and was not seen again for six weeks. On his return, roentgenograms again revealed a major portion of the iodized oil locked in the cisterna magna.

We diagnosed an upper cervical dislocation or possibly an extradural hemorrhage that had organized. We concluded that either the one or the other was exerting pressure on the left upper anterior aspect of the cord. However, we were totally unprepared for what was subsequently revealed at operation.

One of us (A. S. C.) operated (fig. 3). A high cervical laminectomy was done, exposing the suboccipital region, down to the fifth cervical spine. The spines and laminae of the first four vertebrae were removed. The arch of the atlas was held locked anteriorly by the posterior margin of the foramen magnum. It was removed with great difficulty. When finally removed, the exposed dura was greatly thickened anterior to this arch (4 mm. thick), and when cut through spinal fluid and iodized oil gushed from above. The normal pulsations then began; they were absent before. There was a groove across the upper part of the cord corresponding to the arch of the atlas and the thickened dura. The cord worked backward as soon as the dura was cut through, showing that it had been pressed forward before release. There were adhesions between the arachnoid and the cord and the dura in this region on both sides, which were broken up. A careful search revealed no other pathologic changes. The cord appeared of normal size and consistency. In closing, the upper part of the dura could not be opposed; the defect was covered with animal membranes, and the loose tissues over the area were brought together as well as possible for support. The patient was discharged from the hospital on the twenty-fourth day after operation.

Table 2.—*Results of Punctures*

	Initial Pressure, Mm. of Mercury	Forced Expiration with Glottis Closed		
		Mm. of Mercury	Ascent	Descent
Cisternal puncture..	12	23	Rapid	Rapid
Lumbar puncture...	8	18	Slow	Slow

At first the patient's symptoms and signs were exaggerated. Periodic violent clonic movements of the left leg set in soon after his discharge from the hospital. Change of posture brought about clonic tremors of the head. These disturbances abated when the patient's head and neck were supported by a celluloid collar. Gradually the muscles of the left side regained strength and he was soon able to grip 125 with the dynamometer on the left as well as on the right. The left ankle clonus disappeared. The Babinski capriciousness persisted but to a lessened degree. The arm reflexes became bilaterally equal. The leg reflexes, however, maintained a slight inequality, the left being the more prominent. The right-sided esthesial discrepancies became less and less apparent.

The patient was well on the road toward recovery. However, some five months following operation he went into an acute depression and committed suicide.

COMMENT

Our review of the literature was not enlightening. We unearthed many instances of unilateral dislocation at the same level. However, whether unilateral or bilateral, this type of dissolution of cervical alinement always presented itself between the first and the second cervical vertebrae. In fact, a review of the literature and the various indexes failed to reveal a single case in which the break in alinement manifested itself between the occiput and the first cervical vertebra, with the first and second cervical vertebrae maintaining their normal anatomic arrangement. In this respect, at least, our case is distinctive, for the break in continuity as demonstrated by operation occurred between the occiput and the atlas, the atlas epistropheus relation remaining unaltered. Undoubtedly, dislocation at this particular locale, i. e., between the occiput and the atlas, has happened many times, but, more than likely, always with fatal consequences to the patient. Such instances, presumably, would not find their way into medical literature.

SUMMARY

The sensory changes on the right, the motor changes on the left with bilaterally intact vibratory sensation, represented a definite symptom pattern (fig. 3). This symptom pattern connoted a lesion of the upper cervical cord in the left anterior quadrant. Two cubic centimeters of iodized poppy-seed oil 35 per cent remained in the cisterna for six weeks. Operation revealed a posterior luxation of the occiput on the atlas, or, in other words, an anterior dislocation of the entire spinal column on the occiput. It is reasonable to believe that the posterior arch of the atlas pushed the spinal cord forward, jamming its left anterior aspect against the dens of the epistropheus. The operation released the cord, allowing it to swing backward, removing the pressure from its anterior surface. For five months, barring a short interval directly following operation, the patient made progressive improvement. Then he committed suicide. Review of the literature failed to reveal another case of compression myelitis caused by the posterior dislocation of the occiput.

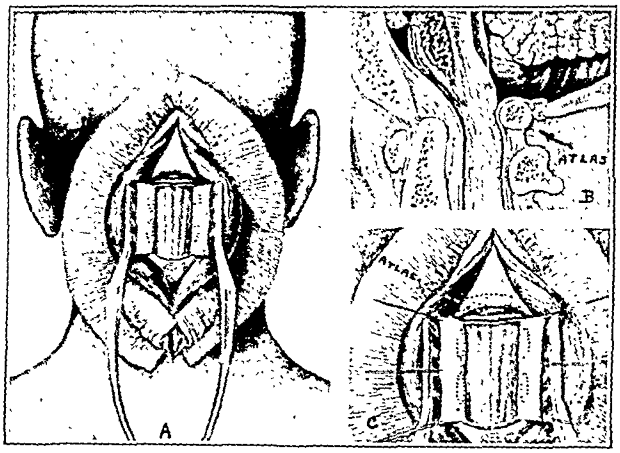


Fig. 3.—All three drawings show the atlas and thickened dura under the margin of the foramen magnum. *B* shows the distortion of the cord.

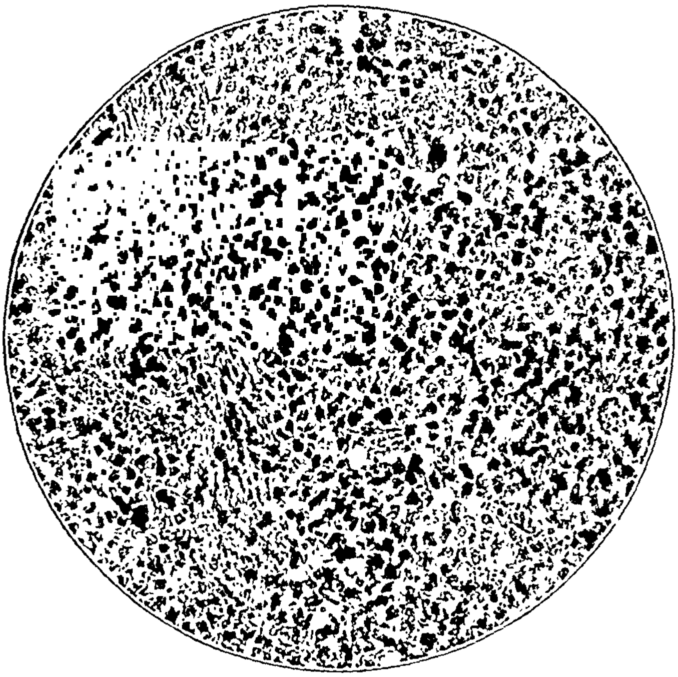
SARCOMA OF OVARY IN A CHILD EIGHT YEARS OLD

Philip Jaisohn, M.D., Reading, Pa.
Pathologist, St. Joseph's Hospital.

Sarcoma of the ovary among children under the age of 10 is quite rare. The available bibliography on the subject in the Surgeon General's Library shows only twenty-four cases between 1888 and 1915, including those reported from Austria, Cuba, France, Great Britain, Germany, Russia, Sweden and the United States. The rarity of the condition warrants my reporting a case that recently came to my observation in this hospital.

Virginia M., aged 8, was admitted to the hospital in the service of Dr. M. Z. Gearhart, Nov. 15, 1929, on the complaint of pain in the lower part of the abdomen and bleeding from the vagina. The physical examination showed that she was quite well nourished and of normal size for her age. There was a mass in the lower part of the left quadrant of the abdomen which was very tender on palpation, and there was some vaginal hemorrhage. This condition was first noticed by her mother about three weeks before her admission to the hospital. Up to that time she had been in excellent health. Since the development of the pain, she had become exceedingly nervous and was unable to rest during the night. The temperature was 101.5 F.; pulse, 120; respiration, 20; blood pressure, 116 systolic and 80 diastolic. The blood count showed 3,670,000 red cells and 9,850 white cells per cubic millimeter of blood, hemoglobin

68 per cent, polymorphonuclears 73 per cent, and small lymphocytes 27 per cent. The urine showed 3 + albumin, occult blood 3 +, and many vaginal epithelium cells but no casts. The roentgenologic observations showed a mass in the left side of the lower part of the abdomen suggesting pelvic origin and the displacement of the colon upward by the mass.



Mixed cell sarcoma of the ovary in a child, aged 8 years, stained with hematoxylin and eosin, slightly reduced from a photomicrograph with a magnification of 450 diameters.

Dr. Gearhart performed the operation of removing the tumor which was found in the left pelvic cavity, involving the ovary and the tube. The tumor was roundish and flat, resembling the shape of a turtle, 15 cm. in length, 8.1 cm. in width, and 6.2 cm. thick, weighing 5.6 Kg. A part of the tumor was necrosed and had undergone a cystic degeneration. The cystlike cavities contained serosanguineous fluid. But the greater portion was fairly firm and well supplied with blood vessels. No trace of the ovary or tube could be seen.

The surface of the tumor was smooth and had no definite capsule except the thin serous covering. On section the tumor tissue presented the white glistening texture which is usually found in the sarcoma of mesenchymal origin. Under the microscope the solid portion of the tumor showed several varieties of cells—round cells, spindle cells, large spheroidal cells and a few giant cells. The stroma was rather scanty and the lumen of the vessels were well crowded with the atypical cells. The accompanying photomicrograph of a section of the tumor well illustrates the major portion of the growth.

There was apparently no involvement of other pelvic organs, nor was there any indication of metastasis in the remote part. The child made a rapid recovery from the effect of the operation and was discharged in two weeks. Up to this writing, more than six months after the operation, she is in good health and has gained 10 pounds (4.5 Kg.) in body weight.

For the want of a better term, I called the tumor a mixed cell sarcoma, but as to its exact histogenesis I am uncertain. The ovarian stroma might have been the seat of its origin, or possibly it might have sprung from some aberrant cells of teratomatous nature. At any rate a guarded prognosis was given, although the postoperative condition of the patient is quite favorable so far.

BRONCHIOGENIC CARCINOMA WITH CEREBRAL METASTASIS IN A PATIENT WITH KYPHOSIS*

MITCHELL BERNSTEIN, M.D., PHILADELPHIA

The diagnosis of intrathoracic cancer in a patient with a deformed chest obviously offers many difficulties. This is especially true in a patient with thoracic deformity when the subjective symptoms suggest the diagnosis of pulmonary tuberculosis with atypical signs. In addition, the pathologic involvement of several cranial nerves further complicates the clinical picture. However, the diagnosis of possible pulmonary cancer with cerebral metastasis, as occurred in the case herein reported, should not be overlooked.

REPORT OF CASE

History.—E. C., a man, aged 48, was admitted to the service of Dr. Bernard Kohn at the Jewish Hospital, Jan. 29, 1930, because of a chronic productive cough together with weakness, night sweats, slight fever and headache. These symptoms had existed for about four weeks prior to admission.

During infancy the patient sustained an injury to the upper spine, the exact nature of which was unknown. This injury supposedly resulted in the permanent deformity of his vertebral column. At 33 years the patient had pleurisy on the left side. About this time he developed a chronic productive cough which had persisted and which became aggravated one month prior to admission to the hospital. There was no hemoptysis. The patient had never suffered with headaches previous to one month before admission, when they made their appearance and were almost constant. Concomitant with the headache, appeared night sweats.

At the time of admission the patient developed double vision. Slight fever was present, the temperature ranging from subnormal to 100.8 F.

Physical Examination.—On admission to the hospital the patient was pale and appeared quite ill. There was a palsy of the left external rectus muscle and a slight weakness of the right side of the face. There was a loss of function of the left masseter muscle. These observations were indicative of the involvement of the left fifth, left sixth and right seventh cranial nerves. Otherwise, the cranial nerves were apparently normal. The eyegrounds did not present any changes.

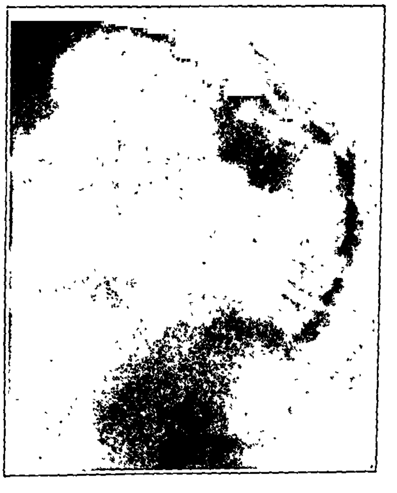


Fig. 1.—Lateral view of the chest showing the marked kyphosis and the malignant mass.

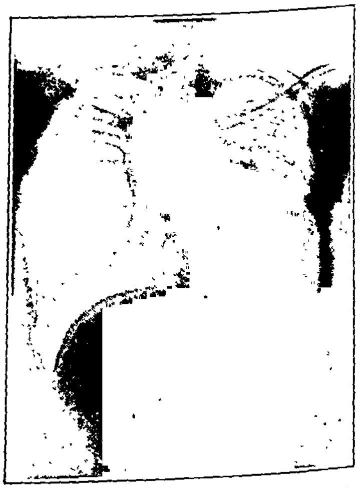


Fig. 2.—Dorsal view showing the kyphosis and the malignant mass in the left lung.

The patient's chest was deformed by the presence of a marked thoracic kyphoscoliosis. Because of this deformity it was difficult to outline the heart. On percussion, the apex of the right lung was found to be impaired, both anteriorly and posteriorly. The breath sounds here were quite harsh. Vocal fremitus and pectoriloquy were increased. On the left side posteriorly there was an area of dulness, close to the kyphoscoliotic curve and extending between the fifth and eighth ribs, to the inner border of the left scapula. Over this area the breath sounds were suppressed and at some points they were entirely absent. Vocal fremitus was diminished. Below this area the lung was hyperresonant; the breath sounds were exaggerated and vesicular in type, and showers of moist râles were heard from time to time.

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* From the Medical Service of Dr. Bernard Kohn, Jewish Hospital.

The abdomen was essentially normal. The reflexes of the extremities together with the superficial abdominal reflexes were normal.

Examination of the blood showed the hemoglobin content to be 76 per cent, red blood cells 4,300,000, white blood cells 6,500, 64 per cent polymorphonuclears, 36 per cent lymphocytes. On chemical analysis the blood was normal. The blood Wassermann test was negative. The spinal fluid was removed under normal pressure, showed no chemical or microscopic abnormalities, and yielded a negative Wassermann test.

Repeated examinations of the sputum were negative for tubercle bacilli.

The feces showed no parasites or occult blood. Several examinations of the urine showed traces of albumin and occasional hyaline casts as the only abnormalities. The phenolsulphonphthalein and Mosenthal tests were normal. The gastric analysis showed a normal gastric curve.

A roentgen examination of the chest (figs. 1 and 2) was made by Dr. Sidney Feldstein, who reported that the heart shadow appeared about normal in size. Its situation was not clearly defined on account of the spinal deformity. Both domes of the diaphragm were clear. The interspaces on the right side were much farther apart than on the left, also on account of the spinal deformity, and the lung structure itself showed no abnormality. On the left side the interspaces were so close together as almost to produce contact of one rib with the other in the upper half of the chest. In the region of the root there was a distinct area of increased density. The upper lobe appeared perfectly nomal. The dorsal spine showed a marked curvature posteriorly, the upper dorsal to the right and the lower dorsal to the left.

Course.—February 3, vomiting occurred and lasted for three days. The headache which was present on admission became quite severe and annoying. The double vision persisted.

February 15, the headache became unbearable and was localized to the supra-orbital region.

March 3, following a period of acute delirium which lasted about one hour, the patient died.

Necropsy.—The essential features of the necropsy observations reported by Dr. B. A. Gouley were as follows: The trachea and lungs were removed *en masse*. There was a large intrapulmonary mass in the root of the left lung, the lesion extending out along the left main bronchus. This mass was irregular but its main portion measured about 3 by 3½ inches. The pleurae were smooth. There was an enlarged node about 1½ inches in diameter, hard and firm at the hilus of the right lung. Dissection of the trachea and the left bronchial tree revealed a bronchiogenic cancer that extended half way to the periphery of the lung and to a lesser degree toward the base. There was marked narrowing of the bronchial lumen because of the bronchiogenic hyperplasia. A purulent exudate was found over this area, extending into smaller bronchial branches. The lower lobe presented an atelectasis, some of which was undoubtedly due to the bronchial obstruction, the other possible factor being the kyphoscoliosis. The rest of the left lung, that is, the upper lobe, was emphysematous. The bronchial tree to the involved portions presented a generalized dilatation and was coated by tenacious catarrhal exudate. The right lung was large and markedly emphysematous. The bronchial tree here was uniformly dilated and similarly coated by tenacious mucus. The bronchial branches could be dissected to the extreme periphery. The appearance was that of asthma and resultant emphysema. The enlarged right bronchial lymph node presented on section firm white homogeneous tissue similar to that of the left bronchial cancer. Metastatic lesions were found at the hilus of the suprarenal. Lymph nodes found at the beginning of the common bile duct were moderately enlarged and firm and were probably the seat of early metastatic involvement.

The body and tail of the pancreas contained hard white nodules from one-half to one inch in diameter, fairly well circumscribed, presenting definite secondary characteristics. The gastro-intestinal tract showed no organic lesion.

The brain was removed and was found to be of normal size. There was no evidence of meningitis, either acute or chronic. There was a soft tumor in the pituitary area extending to the left of the midline pressing on the sixth nerve and involving the roof and the lateral wall of the left sphenoid sinus. The roof was easily broken through; the sinus appeared to be noninvolved but its lateral wall had broken down.

The essential features of the histologic report are as follows: Section of the pancreas and peripancreatic lymph node showed the presence of malignant cellular hyperplasia. The growth was made up of large round and polyhedral cells with hyperchromatic nuclei. These cells were closely packed, forming large alveolar clumps. Other areas showed the cells to be arranged in continual rows and layers. There was scanty but definite stroma formation along which these layers and alveolar clumps were arranged.

Section of the lung showed little or no part of the original lung structure. There was a diffuse fibrous proliferation in the crevices, presenting a rich growth of malignant epithelium with hyperchromatic nuclei and the cells arranged in layers of solid alveolar clumps. They were the columnar type of epithelium. The transition from the normal was not seen in this section. Another lung section showed diffuse neoplastic growth to the exclusion of all but a small piece of the original lung structure. Here was found a small distorted bronchiole, lined by a single layer of cuboidal, or even flat, epithelium. This was part of the transition process, although direct outgrowth from this point could not be seen. It was probably created from similar bronchioles showing this metaplasia.

On examination of the brain, section of the dura showed an invasion of the neoplastic tissue similar to that described in the lungs and the peripancreatic lymph node. Curiously, the new growth was confined in large thin walled spaces in which red blood cells were noted and surrounding small blood vessels that were present already. The malignant condition was denoted by their atheromatous thickening.

The cerebral lesion apparently was confined to the dura region of the infundibulum and caused compression against the pituitary body.

COMMENT

Although cases of bronchiogenic carcinoma are not uncommon, the occurrence of this disease in a patient with a deformed chest may be overlooked, or the diagnosis of pulmonary tuberculosis may be made erroneously. In addition, the involvement of the several cranial nerves, together with vomiting and headache, would suggest the diagnosis of brain tumor.

In our patient the vomiting and headache together with the involvement of the cranial nerves pointed to an intracranial complication. Of course, this may have been tuberculous. However, normal reflexes and the negative spinal fluid, together with a lesion in the left chest at an area not usually affected alone by tuberculosis, served to make the diagnosis of cancer practically certain.

In this connection it may be well to recollect that Fried and Buckley[1] have recently called attention to the fact that bronchiogenic cancer frequently metastasizes to the central nervous system. In reality, this metastasis occurs so frequently that in eleven of fifteen such cases collected by them the bronchiogenic tumor was overlooked, and the clinical diagnosis of primary brain tumor was made.

CONCLUSION

The presence of a marked kyphosis or kyphoscoliosis in any patient with pulmonary disease, during the age when carcinoma is most common, should not mislead us from keeping in mind the possibility of intrathoracic cancer. Moreover, when a patient of this type shows intracranial symptoms in addition to the thoracic signs a critical survey for primary carcinoma should be made.

1321 Spruce Street.

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1. Fried, B. M., and Buckley, R. C.: Primary Carcinoma of the Lungs, Arch. Path. 9: 483 (Feb.) 1930.

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SATURDAY, OCTOBER 11, 1930

AIR CONDITIONING FOR PREMATURE INFANTS

The adaptability of the human organism to marked variations in its external environment—changes in temperature, humidity, movements of the air and isolation—is so well perfected under the usual conditions of living that one rarely stops to consider the limitations that are sometimes imposed on such adjustments. The adult supplements his innate capacity to survive in unfavorable surroundings by means of suitable clothing, together with artificial heat or cooling devices, as the circumstances may demand for his physiologic welfare or personal comfort. Furthermore, he has learned in recent years from hygienic studies that some of the once feared and supposedly noxious factors that may insidiously threaten him are after all of negligible significance. This observation refers particularly to the product of his own respiratory functions—carbon dioxide—to variations in the oxygen content of the inspired air, and to the vague toxic components supposed to vitiate the air that has been breathed by living beings.

Scientific investigation has discovered either that these dreaded menaces are nonexistent, as in the case of the "respiratory poison," or that they are of little significance under the ordinary conditions of life in relation to adult man. The latter can endure relatively high concentrations of carbon dioxide without deleterious effect or any consequences other than an augmented rate of respiration. Shortage of oxygen ordinarily occurs only at high altitudes or in such exceptional situations as may be presented by submarine disasters. Man has thus learned that his welfare and particularly his sense of well being depend, so far as the environmental influences are involved, largely on the ability to preserve the normal function of his heat-regulating mechanism. The latter represents one of the marvelous devices of man's physiologic equipment.

The preservation of a fairly uniform body temperature, representing a remarkable adjustment between heat production and heat loss in the midst of changing atmosphere and metabolism may be annulled by disease. It is admittedly imperfect during the early days of life. The infant not only is helpless with respect to the adjustments represented by variations in clothing, but also only gradually develops to better efficiency the physiologic mechanism designated as temperature control. Even more helpless and maladjusted are the prematurely born infants coming into the world between the sixth and the ninth month of fetal life—puny prospects weighing between 1½ and 5½ pounds. Most unfortunate are the congenitally diseased or sick premature infants suffering from congenital anomalies, birth injuries and acute or chronic infections.

A recent writer has defined success in the treatment of premature infants as depending mainly on four factors: stabilization of body temperature, proper nutrition, nursing care, and prophylaxis against infection. The management of body temperature has until comparatively recently depended on special heating devices such as hot pads, heated beds and electrical incubators. Of late, however, plenum systems of heating and ventilation have received consideration and begun to obtain some vogue.[1] A group of investigators[2] at the Harvard School of Public Health and the Harvard University Medical School in Boston have pointed out that, although the importance of air temperature has been generally appreciated, the direct effects of humidity and rate of air change on body temperature, with their indirect effects on nutrition, growth, infection and the like, have not been fully understood. Doubtless part of this criticism would apply in some measure to conditions of adult living also. Most of the methods now in use, we are told further, have failed to fulfil the environmental needs of premature infants on account of limited air space, inadequate ventilation, insufficient humidification in winter, and lack of facilities for cooling and dehumidifying the air in warm weather. The authors assert that when mechanical ventilation is used there has been a tendency to fix the temperature of a single room at 80 F., regardless of the humidity and of the individual requirements of the infants.

The problem of proper air conditioning is one for the engineer rather than the physician. The latter must, however, establish the physiologic requirements that the apparatus shall meet. The comfort zone and effective temperature index determined for adults[3] cannot be applied without reserve to infants who still have aberrant metabolic and circulatory functions as well as incomplete development of their sweat glands. From observations on body temperature, gain in weight, incidence of diarrhea, mortality, and general behavior of premature infants under various humidity conditions, the Boston investigators[2] adopted a relative humidity of 65 per cent as most satisfactory. Low humidities, such as prevail in many nurseries during cold weather, tended to promote instability of body temperature and other untoward symptoms. The temperature requirements for normal premature infants varied from 75 to 88 F. With the congenitally diseased infants the desirable temperatures of environment showed even greater ranges. Temperatures as high as 100 F. are sometimes temporarily employed. These are attained by the use of individual electrical incubators placed with tops open inside the larger nursery. In this way the infants breathe the comparatively cool room air at about 65 per cent humidity, and the persons in attendance are not subjected to extreme temperature conditions. At the Infants' Hospital in Boston a ventilation rate of twenty-five air changes an hour and an air movement of 15 feet a minute in the nurseries for premature infants have been found advantageous. The application of air conditioning has been followed by marked reduction in the incidence of diarrhea and the mortality rate. Infections were reduced and gains in body weight increased. These are statistical facts. The benefits must be attributed, however, to advances in medical treatment and improvement in nursing and general care, as well as to the installation of a carefully planned air conditioning system.

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[1] Hess, J. H.: Premature and Congenitally Diseased Infants, Philadelphia, Lea and Febriger, 1922.

[2] Yaglou, C. P.; *Drinker, Philip; and Blackfan, K. D.*: Application of Air Conditioning to Premature Nurseries in Hospitals, Am. Soc. Heating & Ventilating Engineers J., Section of Heating, Piping and Air Conditioning, *1930*.

[3] Houghten, F. C., and Yaglou, C. P.: Determination of the Comfort Zone, Tr. Am. Soc. Heating & Ventilating Engineers **29**: 361, 1923. Yaglou, C. P., and Miller, W. E.: Effective Temperature with Clothing, ibid. **31**: 89, 1925.

THE CEREALS IN NUTRITION

The cereal grains are the backbone of the nutrition of most of the races of the earth. They are, as a rule, the cheapest sources of food fuel; so that corn, wheat, rice, rye, barley and oat kernels are to be found constituting a third or often much more of the calory intake of the millions of persons involved. Some of these cereal products are used in almost the same form as that in which they are supplied by nature.. They may be ground or pulverized and cooked, but not otherwise greatly altered. On the other hand, a few of the cereal seeds are manipulated or milled so that a part of the natural kernel is discarded. This is notably true of rice and wheat; in lesser degree also of corn. Aside from these alterations, however, there is a running debate as to the relative nutritive values and physiologic properties of the various cereals. From the chemist's standpoint there is little occasion to attribute any especial superiority to one of the common cereal grains over its usual competitors. All are abundant in starch, have a modicum of protein that does not quite match most animal proteins in biologic value, include essentially the same content of a few inorganic ingredients, and have a complement of vitamins that is not conspicuous or diversified. Despite this, one may observe the dispute of relative virtues entering from time to time into the propaganda for trade preference.

A recent issue of the *Journal of Nutrition* contains a number of contributions[1] that may serve to dispel misgivings regarding any great differences among the commonly eaten whole grain cereals. Mattill has substantiated earlier investigations in showing how small are the differences between the oat and wheat under comparable feeding tests. The oat protein apparently possesses a slight advantage over the wheat protein, and the presence of a small amount of bran in the latter does not alter its biologic value. In terms of comparative figures, the data are 89 for milk, 82 for oats and 73 for wheat preparations.

In studies of the gastric response to different cereal breakfast foods, Clough, Carman and Austin observed only slight differences in the rates of evacuation of the stomach when different products formed the test meal in the same person. The foods were cooked in a uniform manner and eaten with the same amount of sugar and cream in each instance. On the average, wheat endosperm and whole oats showed 83 per cent and 76 per cent, respectively, evacuation at the end of the same periods of observation. Roughage in the form of bran in normal proportions or less appeared to influence evacuation time of the stomach but little in any way.

Current Comment

THE SO-CALLED HEART HORMONE

The demonstration that a few tissues of the body yield chemical substances that are physiologically potent in small quantities has led to the search for "active principles" in many organs. Secretin, insulin and epinephrine are significant illustrations of the accomplishments of the past. The quest of hormones has become the ruling passion as well as the scientific pastime of many investigators. One reads of alleged discoveries of a kidney hormone, an intestinal hormone, and even of a heart hormone. The latter has been postulated as a constituent of extracts of the heart tissue having a characteristic stimulating action on the organ itself. The possibility of producing such effects is admitted; but that there is anything specific in cardiac tissue extracts has been repeatedly denied.[2] An explanation for the known phenomena seems to be afforded by Thorpe's isolation of histamine from the heart.[3] Extracts of the ventricles show a powerful depressor activity that is readily explained by the presence of the amino-acid derivative. In view of the relatively large amounts of histamine both in auricular and in ventricular tissue, it seems probable to Thorpe that the reputed cardiac stimulating effect of heart extracts may be due wholly or at least in large part to that substance. Other tissues also yield histamine; it therefore cannot be a specific heart hormone.

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[1] Clough, H. D.; Carman, J. S., and Austin, E. M.: Nutritive Value of Cereal Breakfast Foods: IV. Response of the Human Stomach, J. Nutrition **3**: 1 (July) 1930. Mattill, H. A.: V. The Biological Value of Some Cereal Proteins as Determined on Rats, ibid., p. 17.

[2] Oppenheimer, E. T.: Am. J. Physiol. **90**: 656 (Nov.) 1929.

[3] Thorpe, W. V.: The Isolation of Histamine from the Heart, Biochem. J. **24**: 626, 1930.

THE SUGAR IN PENTOSURIA

The nature of the carbohydrate in the urine in ordinary cases of glycosuria has long been established as dextrose. It has the familiar and characteristic properties of reducing alkaline copper solutions, rotating the plane of polarized light, and undergoing alcoholic fermentation with yeast. For decades, physicians have been in the habit of testing urine with Fehling's solution or one of its more modern substitutes; and the reduction produced in it by sugar-containing urine has served as a diagnostic index. Dextrose is, however, not the only substance appearing in urine that reduces Fehling's solution. Nearly forty years ago Salkowski and Jastrowitz[1] of Berlin described the first recognized case of pentosuria in man. The origin of the five-carbon sugar in human metabolism still remains obscure, as does the precise chemical structure of the particular pentose that is excreted in an anomalous manner. There have been reports that the sugar is a form of arabinose, $C_5H_{10}O_5$; but the most convincing identifications pointed to *d*-xyloketose as the unique carbohydrate present in the urine of pentosuria. This has now been substantiated for four additional patients by Greenwald[2] of New York University. The establishment of the usual, if not the invariable, structure of the sugar will pave the way toward a better interpretation of the biochemical significance of an "inborn error of metabolism."

THE BACTERIA RESPONSIBLE FOR UTERINE SEPSIS

Not every case of fever in the puerperium is attributable to genital sepsis. The first step in incriminating specific bacteria in cases of puerperal morbidity is to discover by careful clinical examination as well as by the bacteriologic examination of the uterine contents which cases may be properly classified as uterine sepsis. Using both these methods in a study of 125 febrile cases, Taylor and Wright[3] have found in 50 cases certainly and in 27 others probably that fever was due to an extra-uterine cause. In 48 cases there was definite uterine sepsis. Of these, 14 were caused by hemolytic streptococci, 10 by anaerobic cocci and eight were mixed infections with *B. coli* predominating. Only two of the cases ended in death, and each of these patients was infected with type I pneumococci. Not all of these patients had been examined before delivery, but of the 21 who had been so examined only 4 harbored the causative organism in the vagina at the time of examination. The writers therefore concluded that bacteria present in the vagina before delivery are apparently a less serious danger than those which enter during or after labor. They lay emphasis on the frequency with which they have found anaerobic cocci in septic uteri, a finding in accordance with the previous work of Harris and Brown at Johns Hopkins.[4] The prognosis of genital infection cannot be made from a bacteriologic study of the flora. Prognosis and diagnosis, here as elsewhere, are essentially a clinical problem. The bacteriologist may, however, render valuable service in tracing the origin of exogenous infection. It was proved, for example, in the study of Taylor and Wright that one of the fatal infections with type I pneumococci was derived from the nose of an attendant. More definite knowledge is needed as to the chief sources of dangerous exogenous infection during the puerperium, and bacteriologic research must provide the next advance in this direction.

LIPOID HISTIOCYTOSIS

The histiocytes are large phagocytic interstitial cells forming a part of the reticulo-endothelial system. In lipoid histiocytosis, or Niemann's disease, the histiocytes undergo a change; they become filled with cholesterol fat which gives them a foamy appearance; hence the name foam cells. In lipoid histiocytosis, masses of foam cells may lie free in the alveoli of the lungs and may be packed in the pulp of the spleen and the sinusoids of the liver; they almost completely replace the marrow cells in the bones and fill the sinuses in the lymph nodes. The principal microscopic feature of lipoid histiocytosis is the presence of great numbers of vacuolated foam cells in the spleen, liver, lymph nodes, bone marrow, lungs, suprarenal, thymus and lymphoid structures of the intestine and the central nervous system. Clinically, lipoid histiocytosis is characterized by progressive emaciation, enlargement of the spleen and liver, and death before the patient is 2 years of age. The patients are usually physically and mentally retarded; brownish pigmentation of the skin may be present, with slight enlargement of the lymph nodes, a moderate leukocytosis and a slight progressive anemia. The historical background of lipoid histiocytosis is related by Baty,[1] who has placed on record the sixteenth case of this recently discovered clinical entity. In 1914, Niemann reported a case of Gaucher's disease in an infant. Knox, Wahl and Schmeisser reported later two similar cases in infant sisters; Siegmund reported the fourth case in an infant. In studying this group of four cases, Pick brought out the fact that they had peculiar characteristics in common: the age of onset, the clinical course, the distribution of the foam cells in the viscera, and the racial tendency. He clearly established this condition as a clinical entity entirely distinct from Gaucher's disease. Bloom reported three more cases and proposed the name "lipoid histiocytosis" to designate a condition which involved the storage of lipoid material in the histiocytes throughout the body. Single cases have been reported since, until the total has reached sixteen. It may be significant that eight of them have been reported in the last three years. The cause of this rare disease of infants is unknown. There is no evidence of developmental anomalies to explain the symptoms. The failure to store fat in the normal depots may be an indication of a profound metabolic distur-

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[1] Salkowski, E., and Jastrowitz, M.: Centralbl. med. Wissensch. **30**: 337, 1892.

[2] Greenwald, I.: The Nature of the Sugar in Four Cases of Pentosuria, J. Biol. Chem. **88**: 1 (Aug.) 1930.

[3] Taylor, Joan; and Wright, H. D.: The Nature and Sources of Infection in Puerperal Sepsis, J. Obst. & Gynec. Brit. Emp. **37**: 213 (summer) 1930.

[4] Harris, J. W., and Brown, J. H.: Bull. Johns Hopkins Hosp. **44**: 1 (Jan.) 1929.

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[1] Baty, J. M.: Lipoid Histiocytosis (Niemann's Disease), Am. J. Dis. Child. **39**: 573 (March) 1930.

bance, and the entire symptomatology may be only the secondary effect of that disturbance. In his report, Baty interestingly speculates as to whether or not this is a new affliction of man, possibly brought about by the change of diet coincident with the advance of civilization. It seems that a condition with pathologic changes so striking would have been recognized before, if it had been in existence.

Association News

ABSTRACT OF MINUTES OF MEETING OF BOARD OF TRUSTEES HELD IN CHICAGO, SEPT. 25 AND 26, 1930

The Board of Trustees met in Chicago on Thursday and Friday, Sept. 25 and 26, 1930.

COMMITTEE TO STUDY PROBLEMS OF MENTAL HYGIENE AND HOSPITALS

To meet the instructions from the House of Delegates, the Board appointed the following Committee to Study Problems of Mental Hygiene and Hospitals: Drs. H. Douglas Singer (chairman), Chicago; Walter L. Treadway, Washington, D. C.; J. Allen Jackson, Danville, Pa.; F. G. Ebaugh, Denver, and E. J. Emerick, Columbus.

PUBLIC HEALTH CONFERENCE POSTPONED

Because of the inability of a large number of state health officers to attend the conference on public health this year, it was decided to postpone the proposed conference until 1931.

REPLICA OF EX-PRESIDENTS' MEDAL TO BE PLACED IN THE MUSEUM OF THE CLEVELAND MEDICAL LIBRARY ASSOCIATION

In response to a request from the curator, a replica of the medal presented to ex-presidents of the Association at the Detroit session will be placed in the museum of the Cleveland Medical Library Association.

DR. LOUIS CASAMAJOR ELECTED TO EDITORIAL BOARD OF ARCHIVES OF NEUROLOGY AND PSYCHIATRY

Dr. Louis Casamajor of New York was elected a member of the editorial board of the *Archives of Neurology and Psychiatry* to succeed Dr. Samuel T. Orton, who tendered his resignation because of press of other duties.

COMMITTEE ON ENTERTAINMENT AT ANNUAL SESSIONS

Drs. Austin Hayden and F. C. Warnshuis were appointed a Committee on Entertainment at Annual Sessions, with power to add to the committee a sufficient number to carry out the plans of the Board of Trustees.

COMMITTEE ON LEGISLATIVE ACTIVITIES

As requested by the House of Delegates, the Board of Trustees appointed a committee on legislative activities, the personnel of which is: Drs. J. H. J. Upham, Columbus, Ohio; Thomas Cullen, Baltimore; D. Chester Brown, Danbury, Conn.; C. B. Wright, Minneapolis, and E. H. Cary, Dallas, Texas.

FOREIGN BODIES IN RESPIRATORY PASSAGES IN CHILDREN

The resolution of Dr. J. D. Brook of Michigan, which was presented to the House of Delegates, concerning foreign bodies in respiratory passages in children was referred to the Bureau of Health and Public Instruction, with the request that that body take the matter up with the manufacturers of children's toys.

REPORT OF COMMITTEE ON SCIENTIFIC EXHIBIT

The report of the Committee on Scientific Exhibit was approved. Dr. Ralph H. Major and Dr. Hans Zinsser were elected to succeed themselves as members of the Advisory Committee, and the incoming chairman of the Council on Scientific Assembly, Dr. John E. Lane, was elected an ex-officio member of the committee.

COMMITTEE ON MOTION PICTURE AND TALKING FILM IN MEDICINE

In response to the request of the House of Delegates, Dr. Carl H. Davis of Milwaukee and Dr. C. P. Emerson of Indianapolis were appointed a Committee on Motion Picture and Talking Film in Medicine. A third member will be selected.

RESOLUTION FROM MINNESOTA STATE MEDICAL ASSOCIATION PERTAINING TO TRAINING OF RESERVE OFFICERS

The resolution adopted by the House of Delegates of the Minnesota State Medical Association, proposing that changes in the army regulations concerning reserve officers should be made to provide for recommission and reassignment of chiefs and assistant chiefs of professional services of hospital units, even though they have not completed the required amount of military work, having been reported on by the Committee on Military Affairs and National Defense, was not approved by the Board of Trustees.

BUREAU OF MEDICAL ECONOMICS

The organization of a Bureau of Medical Economics is in progress and will receive further consideration at the next meeting of the Board of Trustees.

LEAVE OF ABSENCE FOR DR. NATHAN P. COLWELL

A leave of absence to the first of the year 1931 was granted for Dr. Nathan P. Colwell, secretary of the Council on Medical Education and Hospitals.

DATE OF PHILADELPHIA SESSION OF THE ASSOCIATION

The week of May 11 was decided on for the next annual session of the Association, to be held in Philadelphia, in 1931.

MISCELLANEOUS BUSINESS

Many other matters of importance were considered; some were referred to various councils and bureaus; action on others was deferred until a later meeting.

THE PHILADELPHIA SESSION

Application Blanks for the Scientific Exhibit

Circular letters containing the information on the Scientific Exhibit for the 1931 session, together with the application blanks, will be mailed about the middle of November. Any who desire to receive the circular letter and application blank should mail a request to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago. The Committee on Scientific Exhibit requires that all applications for space must be made on the regular application form.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, Tuesday and Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

October 13.	If I Were Mussolini.
October 14.	Drink to Your Health.
October 18.	The Work of a City Health Department.

Five minute health talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

October 13.	Accidents Can Be Prevented.
October 14.	Concerning Cancer.
October 15.	The Carbon Monoxide Monster.
October 16.	The Likelihood of Longevity.
October 17.	Crashing the Health Gate.
October 18.	Exceptional Exercise.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Society News.—The annual state health conference, September 11-12, was addressed, among others, by Drs. Jesse D. Riley, State Sanatorium, on the care and treatment of tuberculous patients, and Frank Vinsonhaler, dean, University of Arkansas School of Medicine, Little Rock, "Rôle of the Medical School in Preventive Medicine."——The Craighead-Poinsett County Medical Society was addressed, August 7, by Dr. Homer A. Stroud, Jonesboro, on tularemia.——The Jefferson County Medical Society was addressed, September 2, by Dr. Joseph F. Gill, Pine Bluff, on typhoid.——The Tri-County Medical Society (Union, Ouachita and Columbia counties) was addressed, September 4, at Camden by Drs. Rufus B. Robins, Jr., Camden, on "Cardiolysis"; Morris S. LeDoux, Shreveport, La., "Modern Treatment of Syphilis"; Robert G. Douglas, Shreveport, La., "Diseases of the Colon," and Jesse D. Riley, State Sanatorium, tuberculosis.

CALIFORNIA

Society News.—The Butte County Medical Society was addressed at Oroville in September by Drs. Francis H. Redewill on "Modern Therapeutic Treatment in Urology," and James E. Potter on "Treatment of Tertiary Syphilis." Both speakers were from San Francisco.

Diphtheria Decreases.—The San Diego City Health Department reports that no deaths from diphtheria occurred between January 1 and September 10. Only twenty cases were reported during this period. During the year there were twenty-three out of thirty-six weeks in which no cases were reported, and eleven consecutive weeks with no cases. Immunization against diphtheria, which was inaugurated in 1926, has proceeded continuously. An intensive campaign has been carried on this year. The cases have dropped from 251 in 1926 to 85 in 1929.

Changes Among Health Officers.—Dr. Herbert F. True became city health officer of Sacramento, September 15, succeeding Dr. James R. Snyder, city bacteriologist, who had been acting health officer since the resignation of Dr. John Howard Hall. Dr. Roy E. Allen is now city health officer of Reedley, succeeding Dr. John D. Hare. Dr. Paul G. Capps has been appointed health officer of Contra Costa County to succeed Dr. Ira O. Church, who has been granted a leave of absence of one year to take postgraduate work at the Johns Hopkins University School of Public Health at Baltimore.

GEORGIA

Personal.—Dr. James L. Bevans has resigned as director of the John D. Archbold Memorial Hospital, Thomasville, with which he has been connected for seven years, coming as its first superintendent. His successor has not been appointed. Dr. Bevan's resignation will become effective, February 1.

ILLINOIS

Restoration and Revocation of Licenses.—The department of registration and education announced the restoration, September 4, of the medical license of Dr. Louis H. Hayes, Alton, which was revoked, June 3, 1927, on the grounds of conviction for violation of the Harrison Narcotic Act. The license of Dr. Ernest Richard Neubert, Marshall, was revoked, September 11, on the grounds of conviction of violation of the Harrison Narcotic Act. The license of Dr. George E. Fosberg, Chicago, was revoked, August 21.

Prevention of Trachoma.—At a series of clinics sponsored by the U. S. Public Health Service, the Illinois Society for the Prevention of Blindness and the state department of public health recently, 125 cases of trachoma were discovered in southern Illinois. About 600 people among relatives or close contacts of blind pensioners were examined. The state department of health has recently appointed a full-time nurse who will promote the care of patients. Her duty will be to follow up all cases with the idea of getting them under competent medical care.

Society News.—The conference of Illinois Health Officers and the Illinois Municipal League will be held, October 16-17, at Springfield. Among the speakers will be Drs. Allan J. McLaughlin, U. S. Public Health Service, on "Trends in Public Health Service"; Joseph W. Mountin, director, rural health service, Tennessee State Health Department, "The Legitimate Field of the Health Officer"; Don M. Griswold, deputy health commissioner of Michigan, "Diphtheria Control Outlook"; Gilbert Fitzpatrick, "Cancer and the Public Health"; Clarence W. Hopkins, Chicago, "The Experience of a Railroad with Preventive Medicine," and Siegfried Maurer, Chicago, "Program for Saving the Infant Under One Week Old." The luncheon for health officers will be addressed by Dr. William F. King, state health commissioner of Indiana, on "Economics of Public Health Work."——Dr. Robert J. Crossen, St. Louis, talked on "New Aspects of Uterine Bleeding" before the St. Clair County Medical Society, East St. Louis, October 2.

Chicago

Personal.—Lord Berkeley Moynihan was recently guest of honor at the Murphy Memorial Building, where he had given the initial Murphy Memorial Lecture.

Founders' Day Celebrated at Northwestern.—The seventy-second anniversary of the celebration of the founding of Northwestern University Medical School was observed on McKinlock Campus, September 30. The principal speaker was Dr. Isaac A. Abt, who reviewed medical history of recent years as related to medical education in America.

Oxygen Rooms for Treatment of Pneumonia.—Two oxygen rooms for the treatment of patients with pneumonia were recently opened at the Michael Reese Hospital. The rooms constructed at a cost of $10,000, are made of regular building materials instead of special materials used in some other oxygen rooms. The room can be charged with the maximum of oxygen needed in from three to five minutes. One door is large enough so that the patient can be rolled into the room on a bed. The door then is closed and a small door which leads into an airlock is used for the entrance and exit of nurses and physicians.

Society News.—The Chicago Society of Industrial Medicine and Surgery was addressed, October 1, by Dr. John A. Wolfer on "Lesions of Abdominal Viscera Encountered by the Industrial Surgeon." A motion picture film on traumatic surgery of the extremities was shown.——The second annual Arthur Dean Bevan lecture of the Chicago Surgical Society was delivered before a joint meeting of the Institute of Medicine of Chicago, Chicago Society of Internal Medicine and the Chicago Society of Medical History and the Chicago surgical, neurologic and pediatric societies, October 3, by Dr. Harvey Cushing, Boston, on "The Cerebellar Astrocytomas."——A joint meeting of the Institute of Medicine of Chicago and the Society of Internal Medicine of Chicago will be addressed, October 27, by Prof. Otfried Foerster, Breslau, Germany, on "Anatomic, Physiologic and Clinical Observations Concerning Chordotomy."——The Chicago Council of Medical Women was addressed, October 3, by Drs. Esther S. Nelson on "Vitamin D," and Mabel M. Matthies, "Vaginal Flagellosis."

INDIANA

Personal.—Dr. Frederick E. Jackson, Indianapolis, was recently elected president of the board of public health, to succeed Dr. Henry S. Leonard. Dr. Herman G. Morgan will continue as secretary of the board of health, and Dr. William A. Doeppers will continue as superintendent of Indianapolis City Hospital.

Society News.—The Indianapolis Medical Society will be addressed, October 21, by Drs. Murray N. Hadley and Lyman R. Pearson on "Cause of Death in Operative Treatment of Gallbladder Disease" and "Cirrhosis of the Liver," respectively. Dr. Edward Starr Judd, Rochester, Minn., will address the October 28 meeting.——The Gibson County Medical Society was addressed, September 8, by Dr. John H. Hare, Evansville, on the feeding of babies.——The Madison County Medical Society was given a banquet at St. John's Hospital, September 9, after which Dr. Edwin N. Kime, Indianapolis, gave an address and conducted a clinic showing the methods of treatment of common skin lesions.

IOWA

Hospital News.—The Iowa State Psychopathic Hospital, Iowa City, announces openings for two resident physicians and two interns each year in psychiatry. These men must have a good general hospital internship to make them eligible as interns or residents of the hospital, and the resident physicians must also have had psychiatric experience. The Iowa Psychopathic Hospital is the clinical basis of the department of psychiatry and is also the psychopathic division of the University Hospital, which, with all its divisions, is the clinical base of the College of Medicine of the University of Iowa.

KANSAS

Society News.—The University of Kansas School of Medicine has announced that the second series in the Porter Lectureship will be given by Dr. Joseph Collins of New York. The subjects are "Medical Progress and the Specialties" (October 13); "Symptoms of Spiritual Starvation" (October 14), and "Success and Satisfaction in the Practice of Medicine" (October 14).

LOUISIANA

Society News.—The Seventh District Medical Society was addressed in Opelousas recently by Dr. Lucien A. LeDoux, New Orleans, on "Some Functional Disturbance of the Ovaries."

Personal.—The board of administrators of Charity Hospital of Louisiana, New Orleans, tendered a reception, October 5, to Dr. Amédée Granger on the occasion of his twenty-fifth anniversary of continuous service as the chief of the department of radiology.

MARYLAND

Sanitation of Soda Fountains. — The Baltimore City Health Department is conducting a campaign to require proprietors of soda fountains to comply with the state law requiring drinking glasses and spoons to be properly cleansed. An act of the legislature of 1912, dealing with common drinking cups, prohibits the consecutive use of cups, glasses, dippers and other drinking vessels in public places without previous cleansing or disinfecting by washing in clean water containing soap or an alkaline detergent, and subsequent rinsing and cleaning in running water or by some other method approved by the state board of health.

Typhoid in Baltimore County.—Health officials attribute the spread of typhoid in Baltimore to infected milk or water in places where patients spent summer vacations. With the definite diagnosis of five suspects by the health officer for Baltimore County, the Woodlawn typhoid outbreak claimed its fortieth case, September 23. There have been eighty-five cases of typhoid in the city since January 1, as compared with fifty-two for the corresponding period of 1921. The Woodlawn outbreak, which was traced to milk delivered by a typhoid carrier, resulted in an order to discontinue the milk supply and the inoculation of all recommended patrons.

MASSACHUSETTS

Reinstatement Refused.—The petition of Dr. Joseph N. Tessier, New Bedford, for reinstatement by the board of registration in medicine was refused, September 11. His registration as a physician in Massachusetts was revoked several years ago.

Fund Selects Site for Rural Health Project.—The Commonwealth Fund has chosen Massachusetts as the second state in which to develop a rural health project under the terms of its new program for cooperation with the state health departments in promoting rural health. The unit for the health service demonstration will be a group of five or six towns with from 15,000 to 25,000 people which voluntarily unite for the purpose. Two such groups will be formed and each will organize a board of health with representatives from the several towns. A field unit will be formed in the state department to promote rural health progress throughout the state and particularly to guide the development of the two centers of intensive work.

Dedication of Sixth Health Unit.—Dedication exercises at the opening of the sixth health unit, established through the George Robert White Fund, were held, September 15, at Boston. Mayor Curley, in accepting the gift on behalf of the city, stated that the whole plan of the health units in Boston was conceived at a meeting held in Boston about fifteen years ago with Drs. Richard C. Cabot, health commissioner, Francis X. Mahoney and Charles F. Wilinsky. The first unit, established in 1915, was so successful that it was the beginning of a series of these units, which are educational institutions functioning for the training of the public in an understanding and practice of health conservation. The dedicatory address was given by Lee K. Frankel, Ph.D., New York, and an address was later made by Dr. Milton J. Rosenau of Harvard University.

MICHIGAN

State Medical Election.—At the recent annual meeting of the Michigan State Medical Society, Dr. Ray C. Stone, Battle Creek, was installed as president; Dr. Carl F. Moll, Flint, was made president-elect; Dr. John R. Rogers, Grand Rapids, treasurer, and Dr. Frederick C. Warnshuis, Grand Rapids, secretary, reelected.

MINNESOTA

Society News.—The eighth annual convention of the Minnesota Congress of Parents and Teachers, to be held, October 28-30, at Minneapolis, will be addressed among others by Dr. Lawrence R. Gowan, Duluth, on "Mental Hygiene." The joint session of the Minnesota State Medical Association, state board of health, division of child hygiene, Northwest Conference of Child Health will be addressed by Dr. William A. O'Brien, Minneapolis, on "New Childhood," and Dr. Morris Fishbein, Chicago, "Foods, Fads and Follies." Presentation of the summer round-up prizes will be made by Dr. Edward A. Meyerding, secretary, state medical society.

Training School for Reserve Officers. — The second annual inactive duty training period for medical reserve officers will be held at Rochester, November 9-23, under the sponsorship of the Mayo Foundation, directed and personally supervised by instructors of the medical board of the U. S. Army detailed for the purpose. The school offers opportunities for officers who have not received summer training to earn 100 hours toward the required number for promotion at the expiration of their respective periods of appointment. The curriculum embraces basic subjects essential to all medical officers and will cover a period of fourteen days of seven hours each. All medical reserve officers are eligible and arrangements have been made to allow visiting officers to attend clinics in the mornings and schools of instruction during the afternoons and evenings. Any physician wishing to join the reserve corps should apply at once for a commission and when commissioned will be qualified to register for the course. Further information may be obtained from Col. Louis B. Wilson, Mayo Foundation, Rochester.

MISSISSIPPI

Personal.—Dr. Sam L. Hutchison, assistant superintendent, Natchez Charity Hospital, Natchez, has resigned to engage in private practice.——Dr. Hernandez Lira, representing the health department of the Mexican government, has recently been making a special study of hookworm disease control in the protection of the preschool child and in maternal hygiene.

MISSOURI

Society News.—The Jackson County Medical Society was addressed, September 23, by Dr. Wilbur A. Baker, Kansas City, on "Gastro-Intestinal and Metabolic Factors in Arthritis"; Dr. Ferdinand C. Helwig conducted a pathologic conference, and Dr. Robert McE. Schauffler, Kansas City, gave an abstract of recent literature on arthritis.——The Jackson County Medical Society was addressed, September 30, by Drs. Wilson A. Myers, Kansas City, on "Spondylolisthesis with Special Reference to the Etiology and Pathology," and Edward P. Heller, Kansas City, "Rôle of Back Injuries in Production of Renal and Perirenal Pathology."——The heart campaign sponsored by the Health Conservation Association of Kansas City was started with the lecture, October 7, by Dr. Leonard G. Rowntree, Rochester, Minn., on "Recent Advances in the Study of Heart Disease."

NEBRASKA

Society News. — Dr. Ephraim Korol, Maywood, Ill., addressed the Omaha-Douglas County Medical Society, September 23, on "Emphysema and Pneumothorax," and Dr. John Jay Keegan, Omaha, "Surgery of the Sympathetic Nervous System," with case reports.——The Ninth Councilor District Medical Society was addressed, September 9, at Grand Island, by Drs. Robert D. Schrock, Omaha, on "Fractures at the Elbow"; Eugene C. Foote, Hastings, "Eye Conditions in India," illustrated; Eli A. Watson, Grand Island, "Surgery of the Upper Abdomen," and Ernest Kelley, Omaha, "The Mechanism of Hysteria."

NEW MEXICO

Personal.—Public health workers from over the state gave a farewell dinner for Dr. George S. Luckett in Santa Fe, August 23. Dr. Luckett recently resigned as state health officer to become professor of hygiene at Leland Stanford

University. He will be succeeded by Dr. Charles W. Gerber, who has been county health officer of Dona Ana County for several years.

NEW YORK

Society News.—The Medical Society of Niagara County was addressed, September 9, by Dr. Claude E. McDermid, Niagara Falls, on "Rôle Played by Spinal Nerves in Functional Disturbances of Digestion."——The Buffalo Academy of Medicine was addressed, October 1, by Dr. Géza de Takáts, Chicago, on "The Causes of Failure in the Treatment of Varicose Veins."

New York City

First Harvey Lecture.—Dr. Robert F. Frank will deliver the first Harvey Society Lecture at the New York Academy of Medicine, October 16, on "The Female Sex Hormone."

Hospital News.—The staff of the Greenpoint Hospital, Brooklyn, with the approval of the commissioner of the department of hospitals, is undertaking an intensive study of diabetes in children. In order to have sufficient cases for study, this condition being relatively uncommon, physicians are requested to direct children suffering from diabetes to this hospital.

Appointments at Columbia University.—The following appointments to the medical faculty of Columbia University have been announced: Crawford F. Failey, Ph.D., and Warren F. Sperry, Ph.D., assistant professors of biologic chemistry; Dr. Rustin McIntosh, to be professor in diseases of children; George W. Bachman, Ph.D., of the School of Tropical Medicine, San Juan, P. R., to be associate professor in parasitology, and Dr. Samuel T. Orton, New York, to be professor in neurology and neuropathology.

Study of Hospital Practice.—The New York Academy of Medicine, in its recent annual report, advocates an intensive study of hospital practice including the qualification of methods of appointing the medical personnel and the methods of recording case history and pathologic observations. Such a course is said to be necessary to guard against unnecessary operations, which are said to be performed in some of the unsupervised hospitals of the metropolitan district. Such a study of hospitals should include public and private hospitals as well as incorporated and unincorporated hospital nursing homes. The officials of the academy predict that, unless some supervision is exercised over some hospital practice, state supervision of all hospitals will follow in the immediate future.

Society News.—Dr. Cyrus C. Sturgis, director, Thomas Henry Simpson Memorial Institute for Medical Research, University of Michigan, Ann Arbor, will deliver the Middleton Goldsmith Lecture for 1930 of the New York Pathological Society, October 18, at the New York Academy of Medicine, on "Recent Development in the Treatment of Pernicious Anemia and a Consideration of the Etiology of the Disease."——The New York Academy of Medicine was addressed, October 3, by Drs. Norman E. Treves and George T. Pack on "The Development of Cancer in Burn Scars."——"Intravenous Urography as a Diagnostic Method" was the subject of Dr. Moses Swick before the Harlem Medical Association, October 3.——The Brooklyn Pediatric Society opened its new season with a meeting, September 24, addressed by Dr. Fred Maurice McPhedran, Philadelphia, on "Child Tuberculosis."

Radium in New York Hospitals.—Radium to the amount of 13.342 grams, worth $1,000,000, is available to the hospitals of New York City, according to a survey of hospital facilities for cancer treatment recently made by the New York Cancer Committee. The survey states, according to *New York Medical Week*, that the present cost of a gram of radium is $70,000. The largest stock of radium in the city is said to be owned by Memorial Hospital, which owns 4 grams and has the use of 4 grams loaned by special trustees. The New York Cancer Institute has the use of 2 grams and Bellevue Hospital has the use of 1, all owned by the department of hospitals. The survey declares that the need for more adequate care for cancer patients still exists, calls for the development of a special cancer hospital, and points out that early diagnosis and treatment either by radiation or by surgery is essential to a successful outcome.

Fraudulent License Returned.—The endorsement to practice medicine and surgery in New York, based on credentials from Wisconsin and given to "Dr. Paola S. Marzio" was recently returned to the state board of medical examiners. Marzio claimed to be a 1928 graduate of the University of Chicago and to have obtained a license to practice medicine in Wisconsin. There is no record at the headquarters of the American Medical Association of a Paola S. Marzio, and, according to information received, there is no record of a Paola S. Marzio ever having been registered in any department of the University of Chicago or of being licensed in Wisconsin. The American Medical Association does have record, however, of a Paul Victor Marzio who claims graduation from both the St. Louis College of Physicians and Surgeons and the Kansas City College of Medicine and Surgery in 1922. Paul Victor Marzio was licensed by the Connecticut Eclectic Medical Examining Board in November of the same year. This license was one of 175 which were revoked, Feb. 1, 1924, following an investigation of the diploma mill and license scandal. On claims being presented that his credentials were fraudulent, the endorsement of Paola S. Marzio was returned.

Campaign Against Venereal Disease.—Officers of the Bellevue-Yorkville Health Demonstration have invited every physician in Manhattan and the Bronx to a series of lectures to be given at the Bellevue-Yorkville Center as follows: October 9, Drs. Shirley W. Wynne, "Public Health Control of Syphilis and Gonorrhea" and Edward L. Keyes, Ithaca, N. Y., "Gonorrhea in the Male, Diagnosis and Treatment"; October 16, Dr. Abernethy B. Cannon, "Diagnosis and Treatment of Syphilis from the Viewpoint of the General Practitioner"; October 23, Dr. Emily D. Barringer, "Gonorrhea in the Female," and October 30, Dr. Isadore Rosen, "Congenital Syphilis, Diagnosis and Treatment." The lectures are a part of the campaign to inform every resident of the health demonstration area of the risk of venereal infection and to get infected individuals under medical care. The campaign is carried on in cooperation with the New York Department of Health, the New York Tuberculosis and Health Association and the American Social Hygiene Association. The public will be reached by pamphlets, posters, exhibits, lectures and motion pictures. Monthly report blanks are to be sent out to physicians and clinics in the district in October, November and December. The information asked is the number of patients under observation or treatment each month.

Program of Third Graduate Fortnight.—The New York Academy of Medicine's third annual graduate fortnight, to be held October 20-31, will feature "Medical and Surgical Aspects of Acute Bacterial Infections." The speakers, among others, October 20 will be Drs. Frank Billings, Chicago, on "Focal Infection as the Cause of General Disease"; Charles F. Martin, Montreal, Canada, "Continued Education of the Practitioner"; October 21, Fenwick Beekman, "Acute Hematogenous Osteomyelitis"; Joseph F. McCarthy, New York, "Acute Infections of the Urogenital Tract"; October 22, John Edmund Mackenty, "Infections Arising from Tonsils and Sinuses"; Isidore Friesner, "Infections of the Middle Ear (Acute Systemic Infections from the Ear)"; Henry Sage Dunning, "Acute Infections of the Face and Oral Cavity"; October 23, Frederic W. Bancroft, "Operative Risks from Infection"; Eugene H. Pool, "Appendicitis"; Walton Martin, "Bacteriemia"; October 24, William L. Keller, Washington, D. C., "Complications Incident to Delayed Diagnosis in Suppuration of the Lung and Pleura"; Allen O. Whipple, "Acute Infections of the Gallbladder and Biliary Tract"; October 27, George W. Kosmak, "Introductory Remarks on the General Subject of Puerperal Mortality and Its Reduction"; John Whitridge Williams, Baltimore, "Clinical and Pathologic Notes on Puerperal Infection"; John Osborn Polak, Brooklyn, "Puerperal Infections and Their Present Therapy"; October 28, Franz d'Herelle, New Haven Conn. "Bacteriophage as a Treatment in Acute Medical and Surgical Infections"; Frank L. Meleney, "Infections of the Skin and Subcutaneous Tissue-Including Infections of the Fingers and Hand"; Rufus I. Cole, "Acute Pulmonary Infections"; October 29, William H. Park, "Serum Therapy"; October 30, Ernest E. Irons, Chicago, "Facts and Fancies Concerning Vaccines and Non-Specific Therapy"; Homer Smith, "Rheumatic Fever"; October 31, Emanuel Libman, "Acute and Subacute Bacterial Endocarditis," and William W. Herrick, "Meningococcus Infections, Including Meningitis." Dr. Hans Zinsser, Boston, will deliver the Carpenter Lecture, October 29, on "Immunity—General and Local."

NORTH DAKOTA

Society News.—The Cass County staff of district physicians, members of the county board of health and the county public health nurses, held a conference, September 6, as guests of Dr. Albert M. Limburg, county superintendent of health. Addresses were made, among others, by Drs. John B. James, Page, on "Cooperation in Community Interests"; Harry J. Gowenlock, Gardner, "The Public Health Nurse," and Edward H. Richter, Hunter, "The Dental Care of School Children." John C. Pollock, Cass County state's attorney, spoke on "Promotion of Health—Legal Aspects."

OHIO

Milk Examined for B. Abortus.—The health commissioner of Clinton County and the city of Wilmington is making a drive for the elimination and prevention of undulant fever. Several cases have been found. Advertisements are run in the press stating that "any person in Clinton County, Ohio, who retails raw milk from cows that have not been tested for contagious abortion will be prosecuted."

Health Commissioners Have a New Duty.—Under the 1929 Ohio general election law, which became effective, Jan. 1, 1930, the health commissioner of a registration city is required to make monthly reports to his board of elections of the names and residence addresses of all persons, over 21 years of age, who have died within the city during the month, for elimination by the board from the registration list. The provision of law follows:

> *Sec. 4785-46. Notices of deaths and convictions.* The chief health officer of each registration city shall file with the board, at least once each month, the names and residence addresses of all persons, over twenty-one years of age, who have died within such city during the month, and the board shall cause all such names as appear upon the registration lists to be removed therefrom. . . .

The secretary of state, as head of the state's election machinery, has prepared a legal form for submitting these reports, known as "Form No. 248; Prescribed by the Secretary of State." It may be obtained by health commissioners on request to their boards of elections.

PENNSYLVANIA

Philadelphia

Society News.—The Philadelphia County Medical Society was addressed, September 24, by the retired president, Dr. John A. McGlinn, on "Responsibility of Organized Medicine to Combat the Evils That Threaten Scientific Medicine." The scientific program of the society, October 8, consisted of a symposium on blood diseases.——The new college building of the Woman's Medical College of Pennsylvania was formally opened, September 24; among others, Dr. Donald Guthrie, Sayre, delivered an address on "The Modern Medical Graduate —Ambassador of Health."

Institute for Mental Hygiene.—The Pennsylvania Hospital has announced the opening of its new Institute for Mental Hygiene and requests cooperation in finding a new type of medical patient and in finding a fair rate of charge for patients of moderate means. The clinic is planned for patients who will meet the physician more than half way in recognizing that they need help for fatigue cases, fears, maladjustments, and difficulties with getting on with other people or at their work. Mental factors as well as physical will be sought out and treated. Classes in occupational and physical therapy, music and recreation can be used by outpatients or by the patients of any member of the county medical society who wishes to make arrangements for them with the occupational or physical director. Children will be received in the outpatient department and in the Franklin School for problem children. The institute is not licensed and cannot receive any committed patients. It will be greatly interested in toxic mental disturbances and in problems concerning general convalescence. An experiment in medical economics is planned.

RHODE ISLAND

Society News.—The Providence Medical Association was addressed, June 2, by Drs. Frank W. Dimmitt, Jr., on "Some Recent Advances in Otolaryngology," and James L. Gamble, Brookline, Mass., "Pathogenesis of Acidosis and Alkalosis."

SOUTH CAROLINA

Society News.—The annual meeting of the Seventh District Medical Association, September 11, at Kingstree, was addressed, among others, by Drs. Hal M. Davison, Atlanta, Ga., on "Neurosis in Internal Medicine"; Lester A. Wilson, Charleston, "Antepartum Hemorrhage"; Edwin P. Alyea, Durham, N. C., "Invention and Application of Uroselectan," and Charles J. Lemmon, Sumter, "Reconstructed Fractures of the Forearm."——The Greenville County Medical Society was addressed, August 4, by Drs. Charles P. Corn, Greenville, who talked on "Modern Conception of Dermatology and Syphilology."——The Spartanburg County Medical Society was addressed, August 25, by Dr. Edgar A. Hines, Jr., Seneca, on sprue, with report of a case; Dr. Sam H. Ross, Jr., Blaney, reported a case of gangrene of the colon and terminal ileum caused by an unknown bacillus very similar to the dysentery bacillus.——Dr. Harold L. Amoss, Durham, N. C., addressed the Columbia Medical Society, September 8, on "Unusual Complications of Brucella Infection," and Dr. Foster M. Routh, "Common Sense in Allergy."

VIRGINIA

Society News.—The Clinch Valley Medical Society, at its annual fall meeting, September 20, at Norton, was addressed by Drs. Manfred Call, Richmond, on medicine; Harry H. Ware, Jr., obstetrics; St. George T. Grinnan, diseases of children; Charles R. Robins, surgery; Ennion G. Williams, state health commissioner, health problems, and James Allison Hodges, clinical education.

WASHINGTON

Society News.—The tenth annual convention of the Public Health League of Washington at Mount Baker Lodge, September 2, was addressed by Dr. Horace J. Whitacre, Tacoma, on "Economics in the League," in which he brought up the problems which confront the medical profession and the legislative measures pertaining to health that are anticipated to be introduced at the coming legislative session.——The economic and specialty section of the King County Medical Society was addressed, September 29, by Drs. Ivan M. Woolley, Portland, Ore., on "Use of Lipiodol in X-Ray Diagnosis of the Accessory Sinuses," and Harold E. Nichols, Seattle, "X-Ray Diagnosis of Bone Tumors."

WEST VIRGINIA

Society News.—Dr. Frank C. Hammond, Philadelphia, delivered an address on "Genital Bleeding" at the Davis Memorial Hospital, Elkins, September 9.——The Harrison County Medical Society was addressed at Clarksburg, September 4, by Dr. Chester R. Ogden on "European Clinics."

WISCONSIN

Personal.—Dr. Lenwood M. Keene, former physician on the Lac du Flambeau Indian reservation, has been transferred to the Pawnee, Oklahoma, reservation.——Dr. Francis B. McMahon, Milwaukee, won the president's cup at the annual golf tournament, September 13, held during the session of the State Medical Society of Wisconsin.

University News.—Drs. Herman C. Schumm, Jr., and Walter P. Blount, Milwaukee, have been appointed to the orthopedic surgery staff of Marquette University School of Medicine. Dr. Schumm will be associate clinical professor and director of orthopedic surgery at the Milwaukee County Hospital and the Milwaukee Children's Hospital. Dr. Blount will be clinical instructor in orthopedic surgery at the medical school.

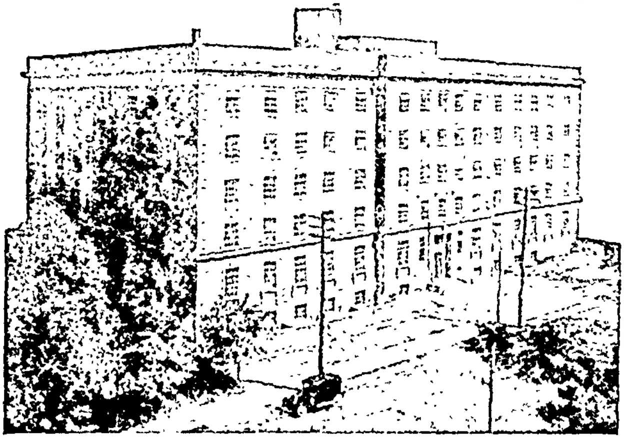
CANADA

Society News.—The seventh annual convention of the Ontario Hospital Association was addressed at Toronto, October 1-3, among others, by Drs. Clarence B. Farrar, Toronto, and Bernard T. McGhie, Orillia, on "Relation of the Mental to the General Hospital; Walter F. Langrill, Hamilton, and Ward A. W. Woolner, Ayr, hospital medical organization, and William J. Dobbie, Weston, "The Financial Responsibility for Schools for Nurses."

Tuberculosis Scholarship Tour.—Fifty-four physicians made up the British scholarship tour of the British tuberculosis sanatoriums of the Dominion and the United States in connection with the recent meeting of the British Medical Association at Winnipeg. The party was headed by Dr. Ernest Ward of Devonshire, the honorary secretary of the Joint Tuberculosis Council of Britain which organization coordinates all the tuberculosis work in England, and included, among others, Drs. John Rennie, medical officer of health of Sheffield; G. B. Price, tuberculosis specialist of the British Ministry of Health; D. A. Powell, president of the Welsh Medical Association, tuberculosis officers, consulting physicians and bacteriologists, each of whom was assigned a special branch of the subject for study to be written up on his return to England.

Opening of the Banting Institute.—Ceremonies in connection with the opening of the new $800,000 Banting Institute of the University of Toronto were held, September 16, with Lord Moynihan, president of the Royal College of Surgeons of England, presiding. The cost of the building was contributed by the provincial government, the university and the Banting Research Foundation, which raised funds by popular subscription. It is estimated that when fully equipped the institute will cost over $1,000,000. The building replaces the old pathologic building of the university and will combine its activities with the general hospital. It commemorates not alone the growth of medical science and the advancement of the

Toronto University but also the name of the Toronto graduate responsible for the discovery of insulin, Dr. Frederick Grant Banting. A tunnel under the roadway at College Street connects the hospital and the institute. The sub-basement of the institute contains necropsy and pathologic museum rooms; the first floor is devoted to laboratories in surgical and neurologic pathology and bacteriology, and has a theater seating 250 and a pathologic library. The third floor is for classes. The architectual beauty is best noted in the large library on the third floor with its gray stucco ceiling and parquet floor. Over the fireplace in this room is a portrait of Lord Lister presented to the institute by Dr. Edmund St. George Baldwin and the late Dr. F. LeM. Grasett who, years ago, was associated with the discoverer of antiseptic surgery at the Glasgow Royal Infirmary. Dr. Banting occupies the top and fifth floors of the building, together with seventeen physicians and scientists who collaborate in research. The department has for the first time full-time professors. Other floors contain laboratories for research and pathologic study, and the roof is occupied by pens for experimental animals. The provincial government has a pathologic laboratory in the building where its own staff will analyze specimens pertaining to the public health of the province. Coincident with the opening of the Banting Institute, a rearrangement of the various departments will be effected. The Institute of Radiotherapy will be enlarged at an investment of nearly $150,000, for the study of the effect of radium, roentgen rays and allied agents. An emanation plant will be incorporated for which work 500 mg. of radium has been set aside, and emanations will be made available for distribution to any reasonable distance. The essential purpose of the institute is to aid research and to enable students to experiment and evolve theories of their own. At the opening ceremonies, the degree of doctor of laws was conferred on Lord Moynihan; Mr. C. S. Blackwell, chairman, board of trustees, Toronto General Hospital, and Dr. Thomas S. Cullen of Johns Hopkins University School of Medicine, and the degree of doctor of science on Dr. Davidson D. Black of the University of Peiping on account of his anthropologic finds in Tibet, and Ambrose T. Shanton of the English government service.



The Banting Institute.

GENERAL

Society News. — Dr. Alexander B. Moore, Washington, D. C., was installed as president of the American Roentgen Ray Society at its annual meeting, September 25; Dr. Leopold Jaches, New York, was made president-elect and Dr. John T. Murphy, Toledo, Ohio, secretary, reelected. The next annual meeting of the society will be held at Atlantic City in September.

Report of United Fruit Company. — During 1929 the United Fruit Company provided medical treatment for 68,965 employees and 102,256 nonemployees. It maintains hospitals and dispensaries at Port Limon, Costa Rica; Almirante, Panama; Quirigua, Guatemala; Tela, Honduras; Puerto Castilla, Honduras; Preston and Banes, Cuba; Puerto Armuelles, Panama; Santa Marta, Sevilla and Aracataca, Colombia, and dispensing service in the ports of New York, Boston and New Orleans. Malaria is of the greatest economic importance in the tropics because of its prevalence, chronicity and debilitating effects on the population. Since 1926, when an intensive campaign for malaria control was inaugurated, the greatest improvement has been noted in children. The report covers sanitation in the tropics, steamship sanitation and the work done at the snake farm at Lancetilla, Tela, Honduras, by the Museum of Comparative Zoology, Harvard University, the United Fruit Company and the Mulford Biological Laboratories. Snakes are collected and antivenin produced under the direction of the Antivenin Institute of America. In a population of 150,000 people in the West Indies and Central America, the annual rate of snake bites was 23 and the mortality 1.06 per hundred thousand. Among the diseases treated by the medical department of the company were 7 cases of leprosy; 106 cases of typhoid with 18 deaths; 325 cases of amebic dysentery with 6 deaths, and 566 cases of hookworm disease with no deaths.

Bequests and Donations.—The following bequests and donations have recently been announced:

Hospital and House of Rest for Consumptives at Sprain Ridge, Yonkers, N. Y., $12,464 by the will of the late William H. Erskine.

United Israel-Zion Hospital, Brooklyn, $10,000; Beth Israel and Mount Sinai hospitals, $7,500 each, and Jewish Maternity Hospital, New York, $2,500, by the will of the late Morris Meiselman.

Mansfield General Hospital, Mansfield, Ohio, $5,000, from Edward W. Loughridge in memory of his parents.

The Roosevelt Hospital, $1,000,000; Manhattan Eye, Ear and Throat Hospital, New York, $100,000; and St. John's Riverside Hospital, Yonkers, N. Y., $50,000, through the will of Lloyd W. Seaman.

St. Vincent's Hospital, New York, $22,500, by the will of Mrs. Alice Harrington Santher.

The Elyria Memorial Hospital, Elyria, Ohio, $45,000, through the will of Mrs. Carrie A. L. Patch. The hospital is to receive the income from the trust fund, and it will be used for the Gates Hospital for Crippled Children.

Presbyterian and Pennsylvania hospitals, Philadelphia, will each receive one third of an estate of $200,000, through the will of William Snodgrass.

The Methodist Episcopal Hospital, Brooklyn, $10,000, from the estate of Simon J. Harding.

The Foote Hospital, Jackson, Mich., a second gift of $50,000 by Capt. William Sparks.

Hospital of the University of Pennsylvania and Pennsylvania Hospital, Philadelphia, each $150,000 by the will of the late Mrs. Elizabeth B. Ketterlinus. The bequest to the University Hospital is to be held in trust and the proceeds devoted to the John G. Clarke fund for the benefit of Ward K. The legacy to the Pennsylvania Hospital is also left in trust.

FOREIGN

University News.—At the Encaenia, held June 25, at the University of Oxford, the honorary degree of D.Sc. was conferred on Sir Arthur Keith, conservator of the Museum of the Royal College of Surgeons of England.

Personal. — Dr. Sigmund Freud, Vienna, was recently awarded the Goethe prize by the German city of Frankfurt, in recognition of researches in psychoanalysis. It is said that Goethe's essay on Nature awakened Freud's desire to be a physician.——Dr. Karl Sudhoff, formerly professor of history at Leipzig, has been elected a foreign member of the Hungarian Academy of Sciences at Budapest.——The William Mackenzie medal for "original contributions to ophthalmology of outstanding merit" has been awarded to Prof. J. van der Hoeve, Leyden, Holland. He delivered an address at the Glasgow Eye Infirmary, October 3, on "Ophthalmology in Its Relation to the Other Branches of Medical Science."

Government Services

Army Personals

Major Daniel J. Hayes, Letterman General Hospital, Presidio of San Francisco, Calif., for the convenience of the government, proceeded to his home about September 30 to await retirement; Major Martillus L. Todd, on the expiration of his present leave of absence, for the convenience of the government will proceed to his home and await retirement; Lieut. Col. Mathew A. Reasoner will report to Medical Field Service School, Carlisle Barracks, for the purpose of pursuing advanced course of instruction, on completion of which he will proceed to St. Louis and assume command of the St. Louis medical depot; Major William J. Burdell, having been found by an army retiring board incapacitated for active service on account of disability incident thereto, and such finding having been approved by the President, the retirement of Major Burdell from active service on September 30 is announced; Lieut. Col. Daniel P. Card, assigned to duty at Letterman General Hospital, San Francisco; Capt. John H. Dawson, assigned to duty at Fort Sill, Oklahoma; Capt. Horace J. Caterer, Fitzsimons General Hospital, Denver, for the convenience of the government, proceeded to his home about September 30 to await retirement.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 20, 1930.

The Improvement of the Race

In an address before the ninth annual meeting of the International Federation of Eugenic organizations, Sir Arthur Keith considered the effect of modern civilization on man. Was the generation growing up as fit in body and mind as the one it would replace? Was there evidence of deterioration? If civilization was tending to exchange ability for mediocrity, measures would have to be discovered to alter this. He hoped that the forces which had raised man to his present status would raise him still higher. He approached eugenics with the eye of the prehistorian. There were only two chapters in man's evolutionary history. The first began with emergence from the Pithecanthropoid stage and ended with the full-blown types of humanity such as were found in Europe and South Africa toward the end of the last ice age. In that phase, progress was effected amid natural surroundings. Then, 10,000 years ago, man's evolution proceeded under new conditions—those seen in cities, conditions which were no longer made by nature but by man. In the first or natural stage the production of the race was everything; in the second the production of the race was sacrificed to the accumulation of wealth. In both phases humanity walked toward its fate with eyes closed. If eugenists had their way a new phase—a conscious phase—of evolution would be initiated. If it was found that the way man lived was leading to mental and physical bankruptcy, people could no longer afford to be mere pawns on the chessboard of evolution: they must take a hand at the game. The chief difficulty before eugenists was human nature, which was dominated not by reason but by passion, feeling, emotion, prejudice and instinct. Eugenic reform depended on the extent to which human nature could be rationalized. There were signs that the times were favorable. The public of all countries was more willing to listen to eugenic proposals than at any previous period. The highest dignitaries of the church were now seeking to open a way for the eugenist. They had removed the tabu that surrounded the processes of reproduction. At the meeting they were fortunate in having to welcome Major Leonard Darwin, the Nestor of English eugenics. Seventy years had gone since his father published "The Origin of Species.". That book had moved the world toward eugenic reform more than any other.

Mr. C. J. Bond, a surgeon, gave some facts pointing to deterioration of the population. The examination of 2½ million men of military age in 1918 showed that only one third were perfectly healthy and fit. The loss from sickness among insured persons in England and Wales in 1928 amounted to 26½ million weeks. (It should be remembered that a certain amount of this is due to malingering and lax certification.) The first step should be a fuller ascertainment of the real position, a national stock taking of mental and bodily qualities in different social groups. The next step was to cease breeding from inferior stocks and to promote larger families in the superior. Sterilization duly safeguarded, in combination with segregation, must be the method to prevent procreation of the defective, irresponsible and antisocial, who largely composed the subnormal lowest social group.

Leonard Portal Mark: The Physician Who Described Acromegaly in Himself

The death at the age of 75 years of Dr. Leonard Portal Mark removes an heroic figure, who, stricken with acromegaly, bore his sufferings not only with fortitude but with equanimity and turned them to account for the benefit of medical science. Born at Marseilles in 1855, the son of the British consul there, he was educated in France and entered St. Bartholomew's Hospital, London, from which he qualified in 1879. He settled in London as a general practitioner and, possessing artistic talent, also undertook the work of pathologic artist at his hospital. Although he was skilled in the detection of disease in others, the onset of acromegaly was so insidious that he did not recognize it in himself for thirteen years. In his autobiography he wrote: "I suddenly became aware that I was the subject of a peculiar and rare disease. Great was my surprise when I learnt shortly afterward that the fact was well known to my medical friends, who had watched its steady development for fifteen years or more. Each day when I looked into the glass to brush my hair, there was a typical acromegalic literally staring me in the face. Yet I never recognized the fact." The disease ran its usual course with severe headache, but Dr. Mark never repined in the least and turned his misfortune to account for the benefit of medical science. Other physicians before him have described their own maladies. The most illustrious is Sydenham, "the English Hippocrates," who used his own experience as a basis for his classic description of gout; but no such minute account as was given by Mark of his own case has ever been published by a physician. Moreover, it would be impossible to surpass the philosophical detachment with which he viewed his malady; he described it exactly as if it had been an interesting case in another person. He carefully recorded his symptoms and had photographs taken from time to time and finally left directions that his skull and brain should be examined by a competent pathologist. As long as was possible he did his daily work without any repining. His first book, "Acromegaly: A Personal Experience," appeared in 1912 and fifteen years later a supplement entitled "The Apologia of an Acromegalic." He recorded the changes that took place in his eyes, his skull and his brain and obtained written opinions from eminent authorities on various points in his case. He minutely recorded his subjective symptoms—the headache, lethargy, tinnitus and feelings of depression. It is noteworthy that the disease did not seem to have in the least shortened his life. In a tribute in the *British Medical Journal* Dr. F. R. B. Atkinson writes: "Always interested in his malady, he was ever ready to hear anything concerning it found in the literature. Ever suffering great discomfort during the fifty years of his illness, often in extreme pain, he never gave in. The last time I saw him he was deaf, nearly blind, could hardly walk and was suffering from various complications connected with his disease. His last words uttered to me not long since were 'I have much to be thankful for.' The medical profession is honored by such a one."

Arsenic in "Cough Drops"

A curious outbreak of arsenical poisoning has been reported from Stoke-on-Trent. A physician reported to the health officer that twelve children had been taken ill after eating certain sweets ("cough drops"), which had all been purchased in one shop. The symptoms were the same in all the cases—gastric irritation followed by vomiting, which in the mildest cases lasted six or seven hours. Analysis of the sweets revealed large quantities of arsenic. Then a similar outbreak due to the same kind of sweets occurred in another district. The premises of the manufacturer were visited by the health authorities. The ingredients of the sweets were found to be white sugar, brown sugar, dextrose and flavoring of camphorated tincture of opium and peppermint and other volatile oils. But it was also found that a dusting powder had been used, which proved to be pure arsenic trioxide. In several analyses of the sweets the quantities of arsenic varied from 77 to 150 grains of arsenic to the pound, and some of the sweets contained as much as two-thirds grain in each one. The large quantities of arsenic used as dusting powder in the manufacture had permeated almost all the ingredients of the works and arsenic was found in considerable quantities in treacle and other substances. The source of the dusting powder seems to have been a box of arsenic trioxide left by a previous tenant who made enamel letters for shop windows. How it came to be used as a dusting powder is not explained. It is fortunate that in spite of the heavy contamination with arsenic there were no deaths. The manufacturer and his son suffered from arsenical irritation of the skin as well as from pains and diarrhea due to eating food with hands contaminated in the making of the sweets.

Birth Rate Lowest on Record

The registrar-general's medical tables for 1929 have just been issued. The birth rate was 16.3 per thousand living at all ages, once again the lowest recorded since the establishment of civil registration in this country, the lowest previous rates being 16.6 for 1927 and 16.7 for 1928. The death rate was 13.4 against 11.7 in the previous year; it is the highest since 1919, which had a figure of 14 but, because of the war, was based on the deaths of civilians alone. The increase in the death rate was due almost entirely to the high mortality from respiratory and circulatory diseases and the influenza epidemic during the abnormally severe weather of February and March. The deaths of infants under 1 year were 74 per thousand live births, or 9 above those of 1928. Here again the excess was due to the high mortality of the March quarter. Excepting the pandemic of 1918-1919, the epidemic of influenza was the most severe in this country since the disease reappeared in 1890-1891, the mortality being 734 per million living, against 196 in 1928. Deaths from accidents due to mechanical vehicles on the roads increased from 4,492 in 1927 to 5,251 in 1928 and 5,799 in 1929.

Another Martyr to the X-Rays

The roll of martyrs to the ignorance of the need of protection against the x-rays in the earlier period of their use unfortunately is not completed. Mr. E. H. Harnack, who is now 65 years of age, was one of the pioneers of the use of the x-rays. He is in the London Hospital awaiting the removal of the remaining portion of his right hand. For more than twenty-five years he has served the hospital, first as a photographer and then as radiographer in the earlier experimental work with the x-rays, in association with Dr. Sequeira, the former dermatologist to the hospital. As a result, he contracted roentgen cancer. Already he has lost the whole of his left hand and the fingers of the right. Some time ago the right thumb became affected and it is now necessary to amputate at the wrist. He has undergone some dozen operations on his right hand. When he became incapacitated for further work the governors of the hospital granted him a pension and he also received one from the Carnegie trustees. From the new x-ray plant of the hospital no one has ever suffered. Twelve of the pioneers in the use of x-rays in this country have died from malignant disease following burns due to their occupation and few have escaped without amputations.

Professor Bequeathes His Body to Hospital

Prof. H. H. Turner, the eminent astronomer, Savilian professor of astronomy at Oxford, who died recently at Stockholm, requested that his body should be used for scientific purposes and left it to the Stockholm Hospital. He also desired that no ceremony, civil or religious, should be used in connection with his burial. Swedish law, however, directs that a ceremony of some kind must follow death. Therefore the hospital could not accept the bequest. Stockholm communicated with the London Hospital, which agreed to accept the professor's body for scientific use. Enclosed in a leaden coffin, it has arrived at the hospital.

PARIS

(*From Our Regular Correspondent*)

Sept. 17, 1930.

The Evolution of Spirochetes

Before the Société de biologie, Levaditi and Li Yuang Po recently presented a communication on the evolutional cycle of *Spirochaeta pallida, Spirochaeta pertenuis* and *Spirochaeta cuniculi.* These spirochetes have a cycle in which one of the phases is represented by parasites arranged in more or less compact chains and circular masses. This stage precedes that of the transformation into nearly ultramicroscopic granules. Various phases of this evolutional cycle may be found in the lesions of the skin and the mucosa, and in the brain of patients with dementia paralytica. Such brains, stained by the Dieterle method (silver impregnation), show in places spirochetes in the evolutional stage, in chains and compact masses, and also the process of transformation into ultramicroscopic granules.

The Bandage Sign

P. Emile Weil has brought up again a study of the *signe du lacet,* or the bandage sign, which consists in the appearance, in certain subjects, of fine petechiae when a moderately tight bandage is applied to the arm, near the elbow, for a period of six minutes. This sign, previously described by Weil and Chalier, and by Frugeni in severe purpura, is observed in hemogenia, in hemophilia-hemogenia and in the hemorrhagic states occurring in liver patients. In a communication to the Société des médecins des hôpitaux de Paris, Weil states that the sign occurs in primary splenomegalia in liver patients, plethoric subjects, persons who are carriers of congenital angiomas, and sometimes also in persons with varicose veins. The author points out that the sign enables one to detect the fragility of the capillaries, and that it throws light on the functional condition of the liver and the spleen, the organs that are in chief control of the tonus, and the formation of the microscopic vascular system.

Lack of Magnesium in the Human Organism

As a result of publications of Professor Delbet and of his widespread propaganda in support of the idea that cancer is due to an insufficiency of magnesia in the body fluids, the magnesia treatment is becoming exceedingly popular, and many persons today are forcing themselves to swallow every morning a lozenge composed of magnesium chloride and magnesium bromide, by way of precaution. The treatment seems to agree with some; they get rid of constipation and find themselves in possession of increased physical and nervous vigor. Delbet has endeavored to discover why civilized peoples today are not so abundantly supplied with magnesium by their food as they formerly were. The alimentary contributions to the magnesium supply of the organism are made chiefly through the salt, the bread and the vegetables. The gray salt of olden times, now abandoned because it is too hygroscopic, contained 1.7 per cent of magnesium chloride and magnesium sulphate, whereas white salt contains only 0.4 per cent of those substances. White flour contains 0.011 per cent of magnesium, whereas the feed reserved for cattle contains from 0.07 to 0.116 per cent. Other animals are thus better off, in this respect, than man. Then, too, the magnesium content of plants varies, depending on the quality of the soil in which they are raised, between 1.32 Gm. and 13.58 Gm. (potatoes). Furthermore, while fertilizers are frequently employed to restore the phosphorus, the calcium and the potassium to the soil deprived of these substances, this is seldom if ever done for magnesium. Here is an oversight that the author wishes to see adjusted, especially in the regions in which cancer abounds. Mr. Lapicque, professor of physiology at the Sorbonne, is not yet fully convinced of the rôle that Delbet ascribes to the lack of magnesium in the production of cancer. But, while he is waiting for this to be proved by the pathologists, he admits that the present diet of civilized man tends to diminish the magnesium intake. It would be easy, he says, to improve the fertilizers by employing magnesium-containing lime substances. By each harvest of beets (*betteraves*), for example, the soil is deprived of 80 Kg. of magnesium per hectare (about 70 pounds per acre). It is difficult today to induce the general public to renounce the use of fine white flour, which has a low mineral content. As a remedy, Lapique recommends the American practice of dredging certain foods with bran and of eating bran muffins for breakfast.

The Birth Rate of Europeans in French Colonies

In the *Presse médicale,* Dr. Legendre, who has spent many years in the colonies, calls attention to the differences that exist in the number of children to a family, in those regions. The number is high in Indo-China, smaller in western Africa, and greatly reduced in Equatorial Africa. Legendre endeavors to ascertain the causes, which, though complex, may be traced to one fundamental cause. The fecundity is in direct proportion to the material comforts enjoyed by the European colonists rather than to the salubrity of the climate. In Indo-China, in a European population of 9,903, of whom 3,445 are adult men and 2,593 are adult women, there are 148 children to each 100 women. In western Africa, where the number of women is diminished, because the home comforts are fewer, since there are fewer large European towns and more isolated stations, in a population of 15,399, or much greater than that of Indo-China, one finds 9,673 men, 3,517 women and 2,209 children, or 34 women to 100 men, and about 62 children to each 100 women; thus, as in Indo-China, about two children per family. In Equatorial Africa, which is just as salubrious as the colonies mentioned, there are only 2,502 Europeans, or 2,010 men, 389 women and 103 children, which is 19 women to 100 men, and 26 children to 100 women, or not much more than one child to a family. Legendre expresses surprise at this restricted birth rate. It is not due to a lack of opportunities for medical care, for there are, in all these centers, well organized maternity hospitals, competent physicians and capable midwives. He finds only one explanation—namely, in the colonies of Africa, there were, in the beginning of the colonizing period, when the life led was primitive, only men to be found. Many civil and military posts were given only to unmarried men—especially the dangerous posts, for the reason that the government, in case of the death of the civil or military officer, preferred not to pay a pension to a widow and children. But that early stage of civilization has passed. Married men are now admitted to all posts; but many prefer to leave their wives and their children in France, in order that the latter may secure a more thorough education in the *lycées,* and also to avoid changing their domicile so frequently as the colonial administration demands of its officials. Furthermore, the dwellings of the officials are, as a rule, better adapted for a single man than for a family. If larger and better dwellings are erected, Mr. Legendre states, more women will come to the colonies and there will be more children.

Camps for Children

The Association de campements de vacances pour les enfants, which was founded in France, a few years ago, is performing an excellent service. Last year it provided sojourns in fresh-air camps for 4,000 children whose parents did not have the means to give them such outings and who otherwise would have had to remain, during that time, in the less healthful atmosphere of the cities. It has recently been decided to locate some of these camps at mountain health resorts, where the children may have the benefit of the pure air and the wholesome surroundings. Dr. Meillon has established one such camp at Cauterets; Dr. Molinéry another one at Luchon, and the resort of St. Honoré-les-Bains has just created one at the suggestion of Dr. Du Pasquier. The first two are installed in tents, out in the fields; the last mentioned is quartered in a large building ordinarily left vacant during the summer vacation. The children are accompanied by leaders who conduct for their benefit daily hikes through the surrounding country, and who take them also, every morning, to the bath establishment for their daily treatment. It appears as if these camps for children would become general at the various health resorts in France.

Retirement of Prof. H. Hartmann

Professor Hartmann, having reached the age limit, is resigning his professorial chair of clinical surgery at the Faculté de médecine de Paris, and also his service in the Hôpital de l'Hôtel-Dieu, where Professor Cunéo has succeeded him.

RIO DE JANEIRO

(From Our Regular Correspondent)

Sept. 15, 1930.

Palmar Mycotic Keratosis

Dr. Olympio da Fonseca, Jr., recently delivered a lecture at the Academia Nacional de Medicina on palmar mycotic keratosis, on which subject he has made extensive studies in collaboration with Dr. A. Ferreira da Rosa. The speaker said that the disease was observed first in Brazil in 1891 by Dr. Alexandre Cerqueira, a professor at the Faculty of Medicine of Bahia. Aldo Castellani, after interesting studies on the subject, which he began at Ceylon in 1905, succeeded in isolating the etiologic agent, which is a type of imperfect fungus of the genus *Cladosporium.* The disease begins as many small dots, either isolated or in small groups, in one or both hands, or sometimes in other parts of the body. The small dots increase in number and in size after several months of evolution, and when the lesion has completely developed they become confluent, forming one lesion in the form of patches of an irregular contour. As a rule these patches extend several centimeters and have slightly elevated borders. The surface of the patches vary from light brown to an almost black coloration, which may be either uniform in the entire lesion or show some spots of more or less intense hue. The surface of the dermatic lesion is smooth and it has an almost imperceptible desquamation. Mycotic keratosis is not associated with pruritus, inflammatory phenomena or erythema. When erythema is observed as a complication, it should be considered as caused by some other influence. The symptoms of the disease are uniform. As a rule, if treatment is discontinued as soon as an apparent cure is obtained, the disease reappears. At examination the fungi appear under the form of septated or ramified mycelian filaments, either curvilinear or rectilinear. The mycelian filaments present a hyaline or slightly chestnut color and they are either isolated or reunited in faggots. In the scales, isolated and short elements, either unicellular or pluricellular which correspond to real thallospores, are found.

Apophyseal Incomplete Fractures

Dr. A. Amorin read a paper before the Sociedad de Medicina y Cirugia on the frequency of isolated apophyseal incomplete fractures. The speaker stated that fractures of the larger and of the smaller tubercles of the humerus, of the epitrochlea, of the epicondyle and of the styloid process of the ulna are frequent though they have been considered rare. The speaker reported two cases of fractures of the larger tubercle of the humerus, four of the apophysis of the distal end of the humerus and some other fractures of the styloid process of the ulna. These fractures were observed without association with any trauma of the respective joints. The speaker stated that these fractures are considered as being rare not because they are so but because they are often overlooked or are considered as simple dislocations or sprains. Incomplete or apophyseal fractures frequently are erroneously diagnosed as traumatic arthritis. Though the last mentioned condition may be present in rare instances, as a rule the fracture is the factor which determined painful manifestations, hydrarthrosis and local irritation of the synovial membrane, caused by the presence of a lost fragment which acts as an intra-articular loose body. The author emphasized the necessity of roentgen examination in every case of articular trauma, the more frequent use of which should indicate the real cause of pseudo-arthritis. The speaker gave a brief review of some cases and detailed the harmful sequels that may follow a mistaken diagnosis.

Epinephrine in Urethral Applications

Dr. E. Lins read a paper before the Sociedade de Medicina e Cirugia on the good results obtained by the use of epinephrine hydrochloride for urethral application to overcome the difficulties offered to the passage of sounds for catheterization in cases of acute retention of urine caused by urethral stenosis. As these conditions are caused in part by the edema present and in part by spasm, the application of a 1:1,000 solution of epinephrine to the urethra is useful. In several cases Dr. Lins obtained good results by means of the application of epinephrine to facilitate the passage of a filiform catheter, thus permitting the use of some other therapeutic administrations.

CAPE TOWN

(From Our Regular Correspondent)

Aug. 29, 1930.

The Medical Congress

The third annual scientific meeting of the Medical Association of South Africa was held at Durban this year at the end of July. This year's session was held under the new rules, which were on trial, and the results of the experiment are interesting. It has always been felt that sectional meetings, especially in a country like South Africa where specialization is still in its infancy, precluded many from taking full advantage of the congress. What was wanted was some arrangement whereby men interested in various specialties could join together to discuss subjects of common interest. This arrangement has been found in the "plenary meetings," at which all sections were represented and for which subjects of common interest were chosen. Unfortunately the choice of the selection committee was not always good, and the first plenary meeting was occupied largely with the discussion of a matter of political rather than professional interest.

MEDICAL EDUCATION OF THE BANTU NATIVE

This was the education of the native to help in the medical services of the native territories. The medical service in these districts beyond the Kei, which are populated almost entirely by natives and where the small white settler communities hardly hold little attraction for the white practitioner, is not what it should be. Infant mortality is high among native children and the incidence of disease among them is great. Medical aid and assistance are rendered by mission doctors or by district surgeons, but such aid and assistance are quite inadequate for the large extent of area and the dense native population. The proposal has therefore been made that special physicians should be allocated to these native areas and that we should follow the lead of the French in West Africa, who have created an auxiliary medical service recruited from intelligent natives who are given a modified medical course and allowed to practice as auxiliary doctors. A somewhat similar policy has been followed in parts of the Dutch East Indies, particularly in Timor and Bali, where the "dokters djavi," educated at the School of Hygiene at Buitenzorg, act as assistant district surgeons. Such "auxiliars" are excused the lengthy preliminary training in the ancillary sciences; they are given a modified course in anatomy and physiology, and special attention is paid to teaching them practical medicine and surgery. Those in favor of this course being followed here point out that there is a dearth of European physicians, who cannot be induced to practice in the purely native areas; that native medical students cannot be educated locally to become registerable simply because public opinion does not permit such students working in hospitals where there are white patients and white nurses, and that if such native students are sent overseas they will probably become "detribalized." The protagonists of these proposals are largely those who are connected with native missions and who cannot make up their minds whether the native must be treated like a child or be allowed to work out his own salvation. The general opinion of the profession is against these proposals. The discussion at the congress plainly indicated that there was opposition to the views put forward, based on the denial of the arguments that it is necessary that there should be an inferior qualification for native practitioners, but perhaps much more on the undesirability of adding to the barriers that already separate the educated native from the educated European. Any native can enter as a medical student at one of our medical schools; as a matter of fact, natives have so entered and there is no proof whatever that their fellow students have received them unfavorably. The practical difficulty is not in the medical schools but in the hospitals, which are not under the control of the faculty and are governed largely by lay committees which will not permit, even if public opinion allowed them, a native senior student to attend white patients. The result of this is that native medical students leave in their third year and continue their clinical studies overseas, usually in Scotland. At present there are about a dozen native practitioners in South Africa, and their relations with their white colleagues are usually amicable, as their skill and professional knowledge are evidenced by their degrees. If they had "auxiliary qualification" such as they would obtain under the proposed scheme and had received their training in a native hospital, their status would be much lower, and they would have far less influence among their fellow natives than they have at present.

A government commission considered this matter some years ago and came to the conclusion that it could not recommend an "auxiliary scheme" of training for native medical students under special grants from the government. It advocated, rather, that promising native students should be given "medical scholarships" to enable them to obtain their medical training abroad. The missionaries are strongly against this scheme, as it removes the native student from their influence. So far as one can judge, these who favor the "auxiliary scheme" of training imagine that the native auxiliary doctors will confine their work to natives and will be wholly subservient to "Christian" influences while at the same time content to submit to tribal convention. One cannot understand, otherwise, why such stress is laid on the danger of "detribalizing" the native student who goes overseas for his diploma. To the logical mind it is unthinkable that a medical man, no matter where he is educated, can be anything else but "detribalized." The discussion on this matter threatened to become acrimonious at the congress but was dexterously sidetracked by a resolution to the effect that the matter should be left in the hands of the federal council of the association for consideration and report.

PROFESSIONAL PAPERS

Another subject for plenary discussion was "The Treatment of Parasitic Diseases," in which Dr. Annie Porter and Dr. Orenstein read opening papers. The discussion was instructive and lively, as most of those present had had experience with malaria, bilharzia, the dysenteries, lambliasis and giardiasis. In the surgical section a communication was made by Dr. Macgregor of Johannesburg, who has successfully treated cases of megacolon in children by excision of the sympathetic ganglions.

In the medical section Dr. Pringle opened the discussion on tuberculosis, from which it appeared that it is generally felt that the disease is much more widespread in this country than is supposed. Other papers were on the ketogenic diet in epilepsy, on the intra vitam diagnosis of pancreatic calculi, and on hyperpiesis. The congress was opened by the governor general, who in his address referred to the traditions of the profession and to the need for research work.

A Gold Medalist

The Medical Association of South Africa has awarded its first gold medal, for meritorious services rendered to the profession in South Africa, to Dr. William Darley-Hartley. He was born at Sheffield in 1854 and graduated from Guy's Hospital, London, in January, 1878. He is one of the few senior medical men in South Africa whose professional career dates back prior to the eighties. He came to South Africa as a military surgeon and took part in the Kaffir and Zulu wars of 1878-1879, being attached to the twenty-fourth regiment, the South Wales Borderers, a regiment which was almost decimated at the battle of Isanhlwana. In 1879 he started private practice at East London. After the Boer war he went to Europe and obtained his degrees of M.D. and M.R.C.P. London. On his return he devoted himself to medical politics, founded the *South African Medical Record,* now incorported with the *Medical Journal of South Africa,* and remained editor of this journal until his retirement in 1928, when he was elected emeritus editor and life honorary vice president of the Cape Western branch of the association. He has been a member of the medical council since 1904 and president of the council for some time. He has acted for many well known papers as war and local correspondent, besides being a frequent contributor to literary journals. The award of the gold medal to a man who has identified himself so closely with the interests of the profession and who is so generally popular and respected meets with unanimous approval.

Antityphoid Serum

Typhoid is one of our most prevalent diseases, and although its incidence has been much lowered by preventive inoculation and by Besredka's oral immunization method, it still occasions many deaths and leads to much economic wastage. For many years, experiments have been made in the direction of discovering a therapeutic antityphoid serum. Dr. Grasset, formerly of the Pasteur Institute and now medical serologist of the South Africa Institute for Medical Research at Johannesburg, has, in collaboration with Dr. Gory, perfected an antityphoid serum which seems to be efficacious and of practical value. Prophylactic vaccination must remain the best method of control of the disease, but the serum is of great usefulness in areas where such control, for local and other reasons, is difficult or impracticable. Especially in the native territories, where the disease is frequent, the serum is likely to be much used. It is the result of prolonged investigation of the antigenic relationship between European strains of *Bacillus typhosus* and strains of South African origin, and is used in injections of 40 cc. with intervals of twenty-four hours in between, three or four injections being usually sufficient to cause the temperature to drop. Drs. Grasset and Gory have published the results of their antityphoid serum therapy in the *Comptes rendus des séances de la Société de biologie* and now Dr. Grasset has published the results of his clinical trials with the South African serum. He reports that the use of the serum is followed by a rapid and consistently maintained improvement in the general condition and by disintoxication, with the disappearance of nervous and ataxic symptoms. The earlier the treatment is given in the course of the typhoid infection, the more rapid and marked are the results obtained. In the mixed and secondary infections, especially those in which there is pulmonary involvement, the serum seems to act especially well.

BUCHAREST

(From Our Regular Correspondent)

Sept. 16, 1930.

The "Interferential" Theory of Treatment of Disease

In an article in the *Wiener medizinische Wochenschrift* Dr. Mór Turnovszky of Targul Mures, Transylvania, Roumania, brought up the priority of the theory of interferential treatment of disease, a term which originated with him twenty-five years ago, when he published his observations in the same periodical, describing some concrete cases in which an incidental disease affecting the organism cured another already existing disease. He reported cases from his own practice. In one of these an epileptic patient was cured by an attack of typhoid. Another patient similarly got rid of chorea. Therefore a disease can be cured by means of another disease. He called this phenomenon an interference and suggested that other diseases could be cured by interferential diseases. His theory became the target of many attacks. In his book "The Cure of Epilepsy," Professor Sarbo called the interferential theory a true fantasmagoria. With the advent of the malaria therapy of dementia paralytica, as introduced by Professor Wagner-Jauregg in Vienna, the interferential method was rehabilitated, and Turnovszky found the time ripe to call the attention of the medical world to the fact that his interferential method is a reality. He does not claim priority over Wagner-Jauregg even in regard of treating a disease with another one, because similar experiments were made many decades ago. But he claims priority in regard to the denomination "interferential" treatment, an expression that he took from physics. It is taught that sound waves and electrical waves when crossing each other have various effects that baffle other waves. This phenomenon in physics is called interference, and he applied it to therapy in this sense.

Pistons That Stick in Syringes

Dr. Stephan Martonffy of Szilágysomlyó recommends a method of loosening pistons that have stuck in record syringes. In most cases the sticking of the piston is caused by the drying up of solutions containing albumin. It is a waste of time to boil the syringe or to warm it because boiling coagulates the albumin and it gets still more firm. It is futile also to attempt the use of acid, which coagulates the albumin and at the same time harms the syringe. The only practical method is to apply concentrated alkaline solutions. The alkali albuminate dissolves in the excess of potassium hydroxide and the sticking is stopped. The syringe is hung with cone down, or put in a tumbler, and the part above the piston is filled with a 10 to 20 per cent solution of sodium hydroxide and left for a day or two. The caustic gradually gets filtered into the narrow space between the piston and the glass, and when the first drop of caustic appears on the bottom of the tumbler the piston is released and can be easily pulled. The method is successful also in cases of rust. The application of caustic in the described way is important because thus it reaches most easily the surface that sticks. Immersing the whole syringe in the caustic solution is not practical because in this way the air bubbles that stick in the cone and between the piston and syringe wall prevent the caustic from reaching its destination.

New Bill on the Activity of Druggists and Pharmacists

It is an old complaint of Roumanian pharmacists that drug stores sell both official and nonofficial remedies; the druggists object to pharmacists selling toilet preparations, raw drugs and rubber goods. The druggist profession is not subject to any special schooling; druggists are regarded as simple merchants, and three years' apprenticeship in a drug store qualifies one to become a druggist. The new bill aims at special schooling and training from would-be druggists, and only those in possession of a certificate issued by the board of pharmacists are to be qualified for opening druggists' shops or acting in them as clerks. The new bill sharply outlines the list of those drugs which druggists are allowed to hold in stock. The draft allows them to sell proprietary medicines that do not contain poisons. It strictly forbids, however, preparation of a prescription. Roumanian druggists are ready to accept the new bill, but they want a paragraph added which forbids barbers to sell toilet preparations, face creams, hair pomades and lotions. The board of pharmacists protested against the insertion of the paragraph enacting that pharmacists should not sell perfumes, cosmetic preparations or rubber goods, and also against the enactment according to which druggists' shops may be open just like the chemists' shops, which may keep open on Sundays, and have to close two hours later than ordinary shops on week days. The government appointed a committee consisting of druggists and pharmacists to study Western conditions on the spot and to formulate the final draft of the bill after having the report of the committee.

BERLIN

(From Our Regular Correspondent)

Sept. 22, 1930.

Meeting of the German Pharmacologic Society

The session of the Deutsche pharmakologische Gesellschaft, held in Königsberg under the chairmanship of Schüller of Cologne, offered many new and interesting features. Starkenstein of Prague discussed the "Problems of Inflammation from the Pharmacologic Point of View." H. Freund of Münster presented the "Pharmacologic Problems of Febrile Disorders"; Storm of Leyden and Hansen of Heidelberg considered the "Field of Allergy," while Schulemann of Elberfeld offered a paper on the "Problems of the Reticulo-Endothelium and Its Functions." Of the other individual addresses only brief mention can be made: E. Poulsson of Oslo reported on researches from which it is evident that the reserve of vitamin A in the females of mammals is much greater than in the males. Seel of Hamburg was able to isolate vitamin A in an extremely pure form, which can be kept, however, only when dissolved in oil. Chemically, it is probably to be regarded as a labile oxidation stage of oxycholesterol, since artificial products of this kind, with similar action, can be prepared, and there is a great similarity between the two bodies as regards their physical behavior. Hildebrandt of Giessen reported that his investigations led to the conclusion that ephedrine acts; to be sure, on the peripheral vessels but its action is not in all respects equal to that of epinephrine. In his opinion the highly toxic effects of ephedrine on the heart exclude its use as a remedy in a state of collapse. According to O. Krayer of Berlin, changes in the frequency of the heart beat influence the volume of the output per minute much more than hitherto believed. The optimal range of frequency of the sufficient heart is rather extensive; the lower limit of the insufficient heart is shifted upward to a considerable extent. Antischkov of Leningrad reported on the dependence of the stimulability of the heart ventricle on the condition of the Keith-Flack sino-auricular node. Aschoff discussed the detailed structure of the system by which stimuli are conveyed to the heart. Duesberg of Berlin spoke on the mechanism of the action of liver diet, which was of great interest. In the regeneration of an anemia, the mode of decomposition of hemoglobin is of importance. With the formation of methemoglobin the regeneration process is accelerated and the hematin formation is lessened. In pernicious anemia, hematin is always present, if there are any blood decomposition products whatever; but in the crisis and at the beginning of the liver therapy, methemoglobin is demonstrable. This observation indicates that the substance active in the liver in pernicious anemia is a precursor of methemoglobin. A preliminary report has been published in the *Deutsche medizinische Wochenschrift* (number 38). Further details will be given later.

Attendants at the session got the impression that, after a period of conspicuous aloofness, pharmacology is again showing interest in questions of practical therapeutics, and it is the general opinion that it would be well if the observations of the clinic were brought out more fully in the session papers and particularly in the discussions that follow their presentation. Practical therapy, the inquiries into causal relations, and the rational methods of treatment would certainly score a gain, while the strictly scientific discussions would not suffer any abridgment. Many pharmacologists have a strong desire for such cooperation, and they have in recent years repeatedly given public expression to this desire.

The Prescription of Copernicus

Copernicus, who taught the world the order of the system of sun and planets now accepted, was originally a physician. In the old fortress in Frauenburg, East Prussia, where Copernicus spent many years, the Copernicus Room serves as a memorial of the great scientist, and in his portrait he is seen with his medical insigne, lilies-of-the-valley, which constituted his favorite drug. In a window seat of this room may be noted a copy of the only prescription of Copernicus that has been preserved. This document has been deciphered by Professor Eichholtz, the director of the Königsberg Pharmacologic Institute, and in the *Deutsche medizinische Wochenschrift* an account of his researches may be found. The prescription comprises twenty-one different substances, which were listed according to the rules of the art, doubtless with the aid of astrologic data. It begins with drugs of a vegetable nature, which, to some extent, are still used; for example, camomile and sandalwood. Copernicus interested himself in the growing in East Prussia of important foreign medicinal plants, in order to secure a supply for medical prescriptions. At the end of the list are the inorganic substances, which are influenced by the then so general belief in the therapeutic potency of precious stones, or jewels. Though we may read with a smile of prescribing emerald, sapphire, amber and corals, we will recall that gold and silver have returned to our armamentarium. The prescription, which was known before Copernicus, was handed down from one generation of physicians to the next, as is still the case. It was employed doubtless in gastric and intestinal disorders, and we have no reason to deny that it was effective in certain cases. We may assume that a physician such as Copernicus was perfectly able to recognize the therapeutic effects of his prescriptions. That may be seen from the fact that the lily-of-the-valley was his favorite medicinal plant. Of the drugs that he employed, that derived from the lily-of-the-valley was the most potent and, at the same time, the most dangerous. It could develop its therapeutic power only in the hands of a physician who, as Copernicus, was equally distinguished by his courage and his confidence. In any event, Copernicus may well be accorded a worthy place in the history of medicine.

Marriages

Scipio H. Africano to Miss Claire Adelaide Marola, both of Union City, N. J., September 20.

Borden Smith Veeder to Mrs. Eugene Henry Angert, both of St. Louis, September 15.

James H. D. Cunnie, Stonehurst, Pa., to Miss Rene Carpenter of Clifton, in September.

Henry C. Allen, Circleville, Ohio, to Mrs. Harriett Weldon of Columbus, August 27.

William J. Sullivan, St. Louis, to Miss Anna May Naylor, June 14.

Deaths

Ross Hall Skillern ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1897; professor of laryngology, Graduate School of Medicine of the University of Pennsylvania; professor of laryngology, Medico-Chirurgical College, 1912-1918; Chairman of the section on Laryngology, Otology and Rhinology, 1920-1921, of the American Medical Association; member and past president of the American Academy of Ophthalmology and Oto-Laryngology, and the American Laryngological, Rhinological and Otological Society; member of the American Laryngological Society, and the American College of Surgeons; member of the American Board of Otolaryngology since its inception; laryngologist to the Rush Hospital, 1900-1913; served during the World War; author of "The Accessory Sinuses of the Nose"; aged 54; died, September 20, of cerebral hemorrhage.

George Wallace Nott ⊕ Racine, Wis.; Rush Medical College, Chicago, 1896; member of the American College of Surgeons; formerly instructor of pathology at the Wisconsin College of Physicians and Surgeons, Milwaukee; on the staffs of St. Mary's and St. Luke's hospitals; aged 58; died suddenly, September 7, of heart disease.

Alfred James Grant, London, Ont., Canada; University of Western Ontario Medical School, London, 1901; member of the American College of Surgeons; assistant professor of surgery at his alma mater; chairman of the board of education; on the staff of St. Joseph's Hospital; aged 51; died, May 26, of heart disease.

Thomas Herbert Williams, Birmingham, Ala.; Birmingham Medical College, 1913; member of the Medical Association of the State of Alabama; on the staff of the South Highlands Infirmary; aged 40; died suddenly, August 5, of heart disease, while performing a cesarean operation.

Helen Arentsen Harbert, Kenosha, Wis.; Northwestern University Woman's Medical School, Chicago, 1891; aged 71; died, September 7, in St. Elizabeth's Hospital, of injuries received when she jumped from a third story window.

James R. Davey, Chicago; Chicago Medical College, 1887; member of the Illinois State Medical Society; for many years on the staff of the Illinois Charitable Eye and Ear Infirmary; aged 71; died, September 16, of angina pectoris.

William Russell Fargo, Baltimore; University of Maryland School of Medicine, Baltimore, 1929; aged 27; on the staff of the Union Memorial Hospital, where he died, September 13, as the result of an infection of the face.

Thomas S. K. Morton, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1885; formerly on the staff of the University Hospital; aged 65; died suddenly, September 8, in Princeton, N. J.

Frank Hopkins Hurd, Hiram, Ohio; Miami Medical College Cincinnati, 1872; member of the Ohio State Medical Association; aged 79; died, July 26, in the Cleveland Clinic Hospital, of cerebral abscess.

John Collison, Red Deer, Alta., Canada; McGill University Faculty of Medicine, Montreal, Que., 1901; formerly mayor and for many years member of the local school board; aged 57; died, May 15, in Vancouver.

Julius Edgar Duncan ⊕ North Wilkesboro, N. C.; University College of Medicine, Richmond, 1907; past president of the Wilkes County Medical Society; aged 55; died, August 15, of carcinoma of the rectum.

Robert L. Jump, Oakland, Calif.; Cooper Medical College, San Francisco, 1890; member of the California Medical Association; aged 65; died, June 16, of myocarditis and arteriosclerosis.

William Porteous McCowan, Winnipeg, Man., Canada; University of Toronto Faculty of Medicine, 1916; served during the World War; aged 39; died, May 16, of septic meningitis.

Marion Kirkland Scruggs, Itta Bena, Miss.; Medical College of the State of South Carolina, Charleston, 1881; aged 72; died in August, of cerebral hemorrhage and arteriosclerosis.

Benjamin Frank Murray, Boston; Tufts College Medical School, Boston, 1909; member of the Massachusetts Medical Society; aged 52; died, May 15, of bronchopneumonia.

Isaac Walter Umbel, Orient, Pa.; College of Physicians and Surgeons, Baltimore, 1906; aged 50; died, June 25, of a skull fracture received in an automobile accident.

Harry L. Miller, Indianapolis; American Health College, Cincinnati, 1886; aged 65; died, August 27, in the City Hospital, of general peritonitis and perforated gastric ulcer.

Leon Herbert Tombaugh ⊕ Waukegan, Ill.; Medical Department of Western Reserve University, Cleveland, 1877; aged 78; died, August 3, of myocarditis.

Julia Stringham Baright, East Northfield, Mass.; Chicago Homeopathic Medical College, 1889; aged 82; died suddenly, August 19, of cerebral hemorrhage.

Elias Smith Richardson, Evart, Mich.; University of Michigan Medical School, Ann Arbor, 1870; aged 88; died, August 16, of chronic myocarditis.

William Peyton Barton, Mount Juliet, Tenn.; Vanderbilt University School of Medicine, Nashville, 1882; aged 74; died, August 31, of cerebral hemorrhage.

John Austin Munson, Wawarsing, N. Y.; Medical Department of Columbia College, New York, 1883; aged 72; died, August 19, of chronic myocarditis.

Francis Xavier Beaulieu, Taunton, Mass.; Baltimore Medical College, 1900; member of the Massachusetts Medical Society; aged 51; died, June 13.

Robert Montgomery Houck, Vandalia, Ill.; Rush Medical College, Chicago, 1882; aged 72; died, August 28, in a hospital at Dowagiac, of diabetes mellitus.

S. P. Meredith, Mankato, Minn.; Hahnemann Medical College and Hospital, Chicago, 1882; aged 78; died, September 1, of hypertrophy of the prostate.

William F. Oliver, Arlington, Wash.; Medical Department of Butler University, Indianapolis, 1879; aged 71; died, August 24, of arteriosclerosis.

Winfred Carle Pike ⊕ Boston; Tufts College Medical School, Boston, 1900; aged 61; died, August 21, in Cape Elizabeth, Me., of angina pectoris.

William O. Cheeseman, Chicago; Hahnemann Medical College and Hospital, Chicago, 1884; aged 79; died, September 5, in Winnetka, Ill., of senility.

George Henry Pagels, Worthington, Ohio; Ohio Medical University, Columbus, 1898; aged 60; died, September 4, in Columbus, of heart disease.

James M. Hayes, Newport News, Va.; Howard University School of Medicine, Washington, D. C., 1914; aged 44; died, August 15, of encephalitis.

Charles B. Vigus, Eau Gallie, Fla.; Medical College of Indiana, Indianapolis, 1895; formerly mayor of Eau Gallie; aged 60; died, in August.

Oliver A. Price, Cincinnati; Louisville (Ky.) Medical College, 1890; aged 62; died, September 7, in the Deaconess Hospital, of cerebral edema.

Lucy A. Bannister, New York; Woman's Medical College of Pennsylvania, Philadelphia, 1902; aged 74; died, August 25, of coronary thrombosis.

Alexander F. MacLeod, Spokane, Wash.; University of Michigan Medical School, Ann Arbor, 1879; aged 82; died, June 30, of pneumonia.

Carter Braxton Dean, Waco, Mo.; Eclectic Medical Institute, Cincinnati, 1892; aged 90; was killed, August 8, in an automobile accident.

Thomas Russell Cooke, Atlanta, Ga.; Atlanta Medical College, 1867; aged 88; died, August 5, of cerebral hemorrhage and arteriosclerosis.

Harry B. Chritzman, Mercersburg, Pa.; Jefferson Medical College of Philadelphia, 1889; aged 62; died, March 24, 1930, of acute prostatitis.

William F. Matthews, Trenton, Tenn.; Vanderbilt University School of Medicine, Nashville, 1880; aged 75; died, July 29.

Francis James Bateman, Strathroy, Ont., Canada; Trinity Medical College, Toronto, 1888; died, April 12, of cardiovascular disease.

Benjamin Rosenbloom, Atlanta, Ga.; Atlanta School of Medicine, 1911; aged 45; died, July 29, of strangulated inguinal hernia.

Burnley Duke Tyler, Guthrie, Ky.; University of Nashville (Tenn.) Medical Department, 1894; aged 67; died, August 20.

Percy James Emerson, Sidney, B. C., Canada; University of Toronto Faculty of Medicine, 1911; aged 56; died, May 2.

Philip Henry Weber ⊕ Oakland, Calif.; Cooper Medical College, 1905; aged 49; died, July 7, at Yosemite.

Bureau of Investigation

THE PAVIA "CANCER CURE"

With a Brief Biographical Sketch of Its "Discoverer"

During the past year, editors of newspapers and magazines have received from one Burroughs F. Perry of 221 Shoreland Arcade, Miami, Fla., a piece of mimeographed publicity material headed, "Cancer and Goiter Cure Is Asserted." The statement is to the effect that one Charles Pavia, whom Perry describes as a "mental scientist of Miami," has discovered a wonderful cure for cancer and goiter! Further, according to Mr. Perry's material, the Pavia formula "feeds the cancer germs, satisfies it and destroys it by self satisfaction." One infers from this statement that cancer is caused by a germ and that this particular germ thinks so much of Mr. Pavia's remedy that when it gets the opportunity, it gorges itself to death!

The main exploiter of Pavia's remedy seems to be one R. B. Fisher, whose stationery announces him to be an attorney; he, too, does business from 221 Shoreland Arcade, Miami. Mr. Fisher has declared that he is the "Secretary-Treasurer of the corporation that is manufacturing his [Pavia's] remedies." According to Attorney Fisher, Pavia is not a "mental scientist" as stated by Perry, but a "medical scientist."

Mr. Fisher wrote to the American Medical Association, asking the Association's cooperation in testing out Mr. Pavia's "cancer and goiter remedy." Mr. Fisher was told that the Association received, on an average, one letter a week similar to his from persons who claimed to cure cancer and that if it attempted to undertake a scientific investigation of every one of these alleged cures, the Association would have time for nothing else and, besides, as experience has demonstrated, would be wasting its time in doing so. He was told, further, that the very fact that he classified Pavia's alleged remedy as a cure for both cancer and goiter indicated the lack of even an elementary knowledge of the problems involved. This letter so pained Mr. Fisher, who read into it the statement that the medical profession condemned all cancer remedies as worthless and not worthy of investigation, that he returned the letter written by the Bureau of Investigation, in order that it might be destroyed. The letter was returned in a registered envelope for which a return receipt was requested!

Later, Mr. Fisher sent to The Journal what he described as a biographical sketch of the life of Charles Pavia, "scientist of Miami." From this sketch, it appears that Charles Pavia was born in 1893 "on the east side of New York" of parents who came to the United States from Italy in 1883. As a child, Pavia sold newspapers and one of his customers was Alfred E. Smith. After leaving school, Pavia became a telegraph operator and, about that time, became interested in the development of a cure for cancer. Later, Pavia went to California, where he met Jack London. He then went to Alaska, where he met Rex Beach and Tex Rickard; returned to San Francisco, became a seaman on the Dollar Line, and went to Hawaii and Australia, met Captain Robert Dollar, who is said to have taken a liking to him. Once again Pavia came to San Francisco, where he is said to have gone into chemical and research work under "Professor William J. Thackeray, a well-known scientist, then in Oakland."

In 1918 Pavia returned to New Jersey to visit his parents and, while there, continued his experiments and developed a remedy that was applied to a friend of his, who "had a clot of blood forming on his head." In ninety days' time, "the head was entirely cured." Then a woman acquaintance with a "clabbed breast" was treated with Mr. Pavia's remedy and, as his biographical sketch says, "err [*sic!*] long the breast was entirely cured." During the influenza epidemic, "Mr. Pavia cured every case of that disease that came to his personal attention." He is said to have offered to Dr. Royal S. Copeland, at that time "Medical Director" of New York City, his formula, free of charge, if Dr. Copeland would use it in relieving the epidemic. But, alas, Dr. Copeland rejected the offer, because "the American Medical Association would not permit him to use any new-found remedy, unknown, and discovered by one not of the medical profession."

Disappointed by Dr. Copeland's attitude, Mr. Pavia kept his formula and experimented with it further and "found that his remedy cured not only influenza, La Grippe and pneumonia, but also burns, scalds, sores, carbuncles, boils, piles, rheumatism" —and what have you! Then Mr. Pavia went to Florida, where he bought considerable property and built a house and, as his financial condition improved, "he bought himself a handsome cruiser yacht." He was still further successful in the real estate field, making a fortune and buying still "another home in the Coconut Grove district" and continuing his experiments in materia medica.

Mr. Pavia was a good friend of William Jennings Bryan, says the sketch and "obtained many valuable ideas from Mr. Bryan in their discourses upon everloution [*sic!*] and the megnetic [*sic!*] powers of universal life." Another close friend of Mr. Pavia's, still quoting the sketch, was "'Uncle' Billy Witham of Atlanta, Georgia, the banker," as well as "Carl Fisher, the developer of Miami Beach" and "likewise the late James Allison."

By this time Mr. Pavia had developed a remedy "backed by proven and unquestioned tests" that would cure cancer, as well as another remedy "for tumors." But, about this time, the Florida real estate boom collapsed and the hurricane that visited Miami in 1926 destroyed his "laboratory equipment." As a result, Pavia, it is said, lost the fortune he once had. Mr. Pavia still has his "cures" for various conditions, however, and is at present experimenting with a "capsule for the internal treatment of cancer, also another remedy which he hopes will aid tuberculosis victims."

So much for the biographical sketch of Mr. Pavia. Later publicity matter sent out by attorney Fisher, secretary and treasurer of the Pavia corporation, includes an elaborate testimonial for Pavia's "cancer cure," credited to L. D. Rogers of Chicago. Readers of this department of The Journal will remember L. D. Rogers and his "Auto-Hemic Serum" quackery that was dealt with in detail some years ago.

A year ago, Pavia and Fisher called on Dr. Charles D. Cleghorn, president of the Dade County (Miami, Fla.) Medical Association, with the request that he would check up on certain cases of patients that had been treated with the Pavia remedy. Dr. Cleghorn did check up on three cases, on which he reports as follows:

> "Case 1.—White female, aged 42, recurrent carcinoma of cervix after operation and radiation. Reported incurable. After a month's application of salve, condition was increased in severity and size.
>
> "Case 2.—White female, aged 48, carcinoma of cervix of two years' duration, one radium radiation. No change after seven weeks' application.
>
> "Case 3.—White male, aged 50, inoperable carcinoma of lower face. No treatment until February, 1929, but two years' duration. Deep x-ray therapy for three months with little result. Steady loss of flesh and strength and increased discharge and hemorrhage following Pavia remedy." [Dr. Cleghorn reported, later, that this patient "proceeded to an early death."]

In June, 1930, the Miami Industrial Board was requested to appoint a committee to take up an investigation of the "cure." After a short review, they refused to appoint such a committee.

What the remedy itself is, we do not know. Dr. Cleghorn states that the description of the formula, as given him, was "vegetable oils, camphor, menthol and turpentine in a base of animal fats." The chemists of the A. M. A. Chemical Laboratory reported that a cursory examination of a specimen of this remedy showed it to be a brownish-yellow ointment with a terebinthinate odor, indicating the presence of turpentine, menthol and camphor. There was practically no ash, and qualitative tests indicated the absence of heavy metals (arsenic, zinc, etc.), alkaline earth metals, salicylates and alkaloids.

It thus appears from information at hand that Mr. Pavia's "cancer cure" differs from the average "cancer cure" paste in that it is not a caustic substance. From the directions that go with the preparation, the patient is instructed to dissolve a tablespoonful of common salt, or epsom salt, in a half-pint of water, bathe the malignant area, and let it dry without wiping; then apply the paste and change the substance at least three times daily. The patient is also told to abstain from meats, but in another paragraph is notified that he may eat beef liver, lamb and spring fowl! While it would appear that the preparation was intended primarily for external application, the instructions also state that in cases of cancer of the stomach, rectum or uterus, "the salve may be applied with a tampon."

In closing, it is but fair to state that the exploitation of this remedy does not seem to have the crude and heartless commercial taint that is to be found in such cancer-cure fakes as the Hoxsey, the Tilton, the Koch, or some of the other widely-exploited remedies in this field. It may well be that Mr. Pavia is sincere. However, a worthless cancer remedy sincerely exploited may prove just as fatal (by deferring scientific treatment beyond the curative stage) as the crudest of cancer cure swindles.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

TETANUS AFTER GUNSHOT WOUND

To the Editor:—I recently cared for a man who had been shot in the buttocks with two buckshot. These shot perforated the body of the ileum and passed on into the abdominal cavity, where they perforated the bowel in about eighteen places. I saw the patient about eight hours (?) after he was shot. A laparotomy was performed and the perforations were closed. One shot was located and removed when it was discovered during the repair. Owing to the precarious condition of the patient, tetanus antitoxin was not given. An uneventful recovery with profuse drainage up to the tenth day was made. On the tenth day, after about two hours of headache, the patient was seized with a typical tetanic convulsion. The head held back rigidly, the eyes wide open and staring straight ahead, or pulling upward, bloodshot, and the jaw rigid. With great effort he acknowledged questions with slight forced movements. He later told us all the questions we asked. The treatment was 5,000 units of tetanus antitoxin, five minutes after the convulsion started; 40,000 units intravenously fifteen minutes after the convulsion started; 53,000 units intramuscularly twenty minutes after the convulsion started, and then 20,000 units every hour intramuscularly for five hours, or 100,000 units, making a total of 193,000 units. Five hours after the onset of the convulsions, the patient was free from all tetanic contraction. No history of epilepsy was found. A history of a skull injury five years previously was found. No convulsions followed. Some of my contemporaries maintain that this could not be tetanus or the recovery could not have been so rapid. I have seen two cases of tetanus previous to this, and I maintain it was a typical tetanus, with a typical history and incubation period, and was a recovery following the immediate use of the antitoxin. May I have your discussion or opinion?

E. J. Ball, M.D., Nekoosa, Wis.

Answer.—The type of wound involving the intestine ten days before the onset of the convulsions fits in with the predisposing factors of tetanus. Treatment was well carried out and it is quite probable that recovery may be credited to the prompt and energetic administration of antitoxin. However, cases of tetanus which develop after the first week have a fairly good prognosis with antitoxin treatment.

While it is known that antitoxin has no effect on the toxin that has entered into contact with the nervous system, the history of this case is not at all incompatible with tetanus. It illustrates the importance of huge doses of antitoxin as early after the onset of symptoms as possible.

Local surgical treatment for drainage of pus pockets and the correction of conditions favoring the development of anaerobic organisms should be done both in the prophylaxis and the treatment of tetanus.

RETICULOCYTES IN BLOOD

To the Editor:—Please inform me as to the proper way to determine and detect the number of reticulocytes in the blood. How are they recognized?

A. W. Patterson, M.D., Fonda, Iowa.

Answer.—The reticulated structure of the red cells is not observed with ordinary stains but requires "vital stains" to bring out this detail. There are several methods which have been suggested for the detection and enumeration of reticulocytes. The following is sufficient for ordinary work:

A drop of a solution of brilliant cresyl blue (0.3 per cent) in 95 per cent alcohol (filtered) is allowed to dry on a cover glass. The drop is spread evenly over the cover glass with a glass rod, and the alcohol evaporates leaving a thin film of the dried stain deposited on the glass. Large numbers of cover glasses can be prepared for future use as the dried stain does not deteriorate. A drop of blood is placed on a clean slide and the cover glass is lowered on to it. If the glass has been thoroughly cleaned and there is no precipitate of stain, the blood will spread out evenly and the stain will diffuse through the preparation immediately.

If no permanent record is desired, the cover glass may be ringed with petrolatum or melted paraffin and examined under the microscope. This preparation keeps for only a few hours. In cases in which regeneration in response to treatment is of interest, it is often an advantage to prepare permanent preparations for record. This can be done by modifying the technic described.

A permanent preparation can be made if, after the cover glass has been lowered on the slide, it is pulled off the slide by a quick lateral tug and allowed to dry in the air. Schilling has introduced a detail in the last part of the method which, if properly carried out, gives a satisfactory preparation. Instead of allowing the cover glass to dry immediately it is placed in a damp chamber (petri dish lined with moistened filter paper) for from five to ten minutes and then dried in the air. The cover glass can now be stained in the routine manner for staining blood smears.

The reticular material stains blue (basophilic) and is easily recognized in the pink stained red corpuscles. The appearance of reticulocytes varies and a blue precipitate of different patterns is seen, depending on the concentration of the so-called reticulum in the cells.

The reticulated red cells encountered in from 500 to 1,000 red cells are counted and the percentage is calculated. The preparation must be sufficiently thin and even to facilitate this count. In normal blood the number of reticulocytes has been estimated at 2 per cent.

PRISM-REFRACTOMETER

To the Editor:—Enclosed please find circular on a prism-refractometer. I would appreciate information about this instrument.

F. N. Knapp, M.D., Duluth, Minn.

Answer.—This instrument is not new, having been on the market for at least five years. It is just as accurate as any of the other refractometers that have appeared during the past twenty years and is probably a little simpler to use. The personal equation of the operator plays a definite part as in all similar instruments, and the results are fairly comparable to a rapid test-case manifest refraction. However, the advertisement is incorrect in stating that "it is possible with it to obtain reliable results without employing atropine." The accommodation of the patient is not relaxed in the slightest during the examination with this instrument; consequently, the refraction is no more accurate than any other refraction without cycloplegia.

TREATMENT OF RENAL CALCULI

To the Editor:—Will you kindly outline the most approved treatment for renal calculi in a man 38 years of age?

M.D., Alabama.

Answer.—There is no single method of treatment that under all conditions may be designed as superior to other treatments. The selection of therapeutic intervention depends on the peculiarities of each instance. As leading working points may be considered the intensity of the suffering of the patient, the frequency of renal colics and the objective symptoms developing as to morphologic and functional renal disturbances. Pronounced symptoms originating with concretions within the kidney parenchyma form a strict indication for operative removal.

In some instances of pelvic calculi an attempt at flushing out the stones may be indicated and occasionally such a procedure may be successful. This intervention may be justified if the concoction or concretions are of moderate size and if the contours of their roentgen shadows are smooth and regular. Very large stones and stones of irregular and rough surface are not a favorable object for such attempts. It also has to be considered whether their mobilization does not inflict traumatism to the structures more severe than their operative removal.

The cystoscopic removal of stones is attempted by ureteral catheterization and the injection of some lubricant. The therapeutic value of various drugs to be taken orally in order to promote the evacuation of concretions is rather doubtful. The flushing may be repeated if the catheterization is not followed by severe reaction.

Star shaped concretions, especially if one branch extends into the *ureteropelvic junction, cannot be the object of cystoscopic* removal. Pronounced deformation of the renal pelvis, copious hematuria and the appearance of functional disturbances of the renal parenchyma form a strict indication for operative removal. This indication is more accentuated if every renal attack is accompanied by general malaise, vomiting and disturbances in the lower intestinal tract.

The modern tendency is to regulate or remove all abnormalities. For the application of this general rule to renal concretions it also has to be considered that the operative removal of renal conditions properly executed is particularly without danger of life and furnishes satisfactory immediate results. There is just as little guarantee against recurrence in the cystoscopic as in the operative removal.

Spinal anesthesia, gridiron exposure of the kidney and pelvotomy permit the operative removal of renal concretions under the most favorable prospects.

POSSIBLE ANEURYSM IN CRANIUM

To the Editor:—A white woman, aged 49, married, seen June 16, had had a sudden diplopia two days before while she was working about the house. This was her only symptom for about an hour. Then she had a sudden excruciating pain in and around the right eye. Rapidly the pain extended over the entire head and into the back of her neck. Another physician had seen her at the onset of the attack. When I first saw her she complained of diplopia, ptosis of the right eyelid, excruciating pain in and around the right eye, severe headache, and pains in her neck. She had had typhoid at 21 but no other severe illnesses. She was in a slight car accident in 1918. About May 25, 1930, while hoeing in the garden, the patient had a similar sudden pain in the right eye and was totally blind. She lay down for about an hour and felt perfectly well. About June 6, while papering a ceiling, she had a similar attack of pain in the right eye, diplopia and headache for about an hour, but no blindness. Examination, June 16, revealed complete ptosis of the right lid, the right pupil widely dilated and fixed, the right eye deviated outward and somewhat downward and inability to move the right eye—in other words, a total ophthalmoplegia. The blood pressure was: systolic, 180; diastolic, 100. Kernig's sign was positive. Neurologic examination was otherwise negative. The remainder of the physical examination was negative except for a small adenomatous goiter and a loud systolic murmur over the entire precordium. The patient was conscious and cooperative. Several hypodermic injections of morphine were required to control the pain. Spinal puncture done the next day showed bloody fluid under considerably increased pressure. The eye pains and headache were completely relieved for two days after spinal puncture. Two days after the first visit she was found to have developed an auricular fibrillation, which responded to digitalis medication. Laboratory examination showed the urine normal and spinal fluid and blood Wassermann reactions negative. Now, five weeks after the onset of the present attack, she still has a total ophthalmoplegia, occasional pains in the right eye and a loud systolic murmur over the entire precordium, without other neurologic symptoms. Kindly give opinion as to the most probable lesion and prognosis. Please omit name.

M.D., Minnesota.

Answer.—The abrupt onset and the presence of blood in the spinal fluid make it most probable that the lesion is of vascular origin, possibly a hemorrhage from an aneurysm. Its location must be within the cranium or at least there must be a communication with the subarachnoid space. All three attacks have involved the right eye only and have affected not only the motor nerves but also the optic nerve in one attack and the sensory nerves. This renders it probable that the lesion is located somewhere near the optic foramen, though one would expect to find some proptosis from pressure on the veins. This symptom is not mentioned. If this diagnosis is correct, while it is possible that there may be recovery from the palsies due to damage to the motor nerves, there is always a serious danger of a recurrence of the bleeding with possibly a fatal result. It would be wise to have the patient seen by a neurosurgeon for study as to diagnosis and the possibility of surgical intervention with a view to ligating an aneurysm if present.

RADIUM AND ROENTGEN RAY IN UTERINE CANCER

To the Editor:—What is the percentage of cures of inoperable cancer of the uterus by the use of radium or roentgen rays?

A. V. Bou, M.D., San Lorenzo, Porto Rico.

Answer.—Bowing and Fricke reviewed 1,094 cases of carcinoma of the cervix treated with radium at the Mayo Clinic from 1915 to 1924. They were able to follow up 1,001 cases for a number of years, and of the 549 cases traced, which were considered inoperable, 21.49 per cent were classified as five year cures.

Healy reviewed the cases of carcinoma of the cervix treated by irradiation at the Memorial Hospital, New York, in 1922 and 1923; of the 161 patients admitted in the advanced stage, 23 per cent were alive at the end of five years. Healy grouped these cases from the histologic standpoint of the degree of anaplasia in the biopsy specimens into the adult cell type, the plexiform, and the anaplastic. These groups corresponded closely to three degrees of potential malignancy, as well as to the grades of radiosensitivity. The adult cell type of carcinoma is resistant to radiation and the anaplastic type is highly radiosensitive, while the plexiform type occupies an intermediate position. The percentage of cures among the adult cell type was only 4, while among the anaplastic carcinomas the percentage of cures was 42.

Among 58 patients treated with radium by Harrold, after a five year period 31 per cent were still living and had no sign of recurrence. Ward refers to a study by Heyman of the results of surgical and radium treatment in carcinoma of the cervix at the Radium-Hemmet in Stockholm. Heyman combined the cases from twenty surgical clinics and seventeen radiologic clinics, leaving out all doubtful statistics and not deducting intercurrent deaths or cases not traced. His standard in this study was the usual five year cure and, of the total cases treated, including operable, inoperable and borderline cases, there was 16.3 per cent of cures following radiologic treatment. Obviously, these figures cannot be directly compared with the preceding ones. The percentage of cures among the operable and borderline cases in Heyman's survey was 34.9.

Following are the references to the articles mentioned above:

Bowing, H. H., and Fricke, R. E.: Results Obtained in Treatment of Cervix Uteri with Radium and Roentgen Rays from 1915 to 1924, inclusive, *Radiology* **14:** 211 (March) 1930.
Greenough, R. B.: Treatment of Malignant Disease with Radium and X-Ray: Cancer of the Cervix (Report of the Committee on Treatment of Malignant Disease with Radium and X-Ray of the American College of Surgeons), *Surg. Gynec. Obst.* **49:** 247 (Aug.) 1929.
Bowing, H. H., and Fricke, R. E.: Radium Treatment of Carcinoma of the Cervix During 1927, *Am. J. Roentgenol.* **21:** 529 (June) 1929.
Healy, W. P.: End-Results of the Treatment of Cervical Cancer by Radiation Therapy, *Am. J. Obst. & Gynec.* **16:** 594 (Oct.) 1928.
Harrold, C. C.: Radium in Cancer of the Cervix: A Report of Fifty-Eight Cases Treated in 1921-1922 with 31 per cent Five Year Cures, *J. M. A. Georgia* **17:** 103 (March) 1928.
Ward, G. G.: Radium Therapy of Carcinoma of Cervix Uteri: An Analysis of Results Obtained at the Woman's Hospital, New York, *Brit. M. J.* **2:** 607 (Oct. 6) 1928.

HYPERGLYCEMIA

To the Editor:—Will you please tell me what are the criteria for differentiating hyperglycemia of diabetes mellitus from that of chronic nephritis, or cite me to the literature bearing on the point? Please withhold name.

M.D., North Carolina.

Answer.—It is not always easy to differentiate a hyperglycemia of diabetes mellitus from that of chronic nephritis. The history is of considerable importance, as a patient with diabetes who has reached the stage of secondary nephritis will usually give a characteristic history and will usually also show glycosuria. On the other hand, the patient with nephritis will not give a diabetic history and will not show glycosuria. In case of doubt the reaction to an increase of carbohydrate load may settle the point. The hyperglycemia due to diabetes will almost invariably respond to excessive carbohydrate intake with glycosuria, while the nephritic will not.

On the other hand, there is a certain group of elderly arteriosclerotic patients with glycosuria and hyperglycemia. There is still considerable dispute as to whether these patients are truly diabetic or not, but from a practical point of view their reaction to excessive carbohydrate load is of importance in differential diagnosis.

SIGNIFICANCE OF BLOOD PRESSURE DETERMINATIONS

To the Editor:—What is the significance of a high diastolic pressure in (*a*) low systolic; (*b*) normal systolic; (*c*) high systolic? Please omit name.

M.D., New York.

Answer.—The diastolic pressure is assumed to vary with changes in the peripheral resistance, and a high diastolic pressure to indicate an increased peripheral resistance. The peripheral resistance may be increased by vasoconstrictive changes in the peripheral vessels, by increased tonus, or by anatomic changes in the vessels. Where there is a high diastolic pressure and a comparatively low systolic pressure, it might be assumed that there is an increased peripheral resistance with a *relatively* small volume output from the heart, the result in some cases of insufficient heart action. Such a condition does obtain in the later stages of cases in which there has been a high systolic pressure, and the heart is failing. It is also seen in cases which for the time at least appear to be doing well. The high diastolic pressure is nevertheless ominous and significant. The second class, with the normal systolic pressure, probably belongs in the same category as those with a low systolic pressure. The cases showing high diastolic and high systolic pressures represent the condition normally found in hypertensive kidney and vascular disease, in which there is an increased peripheral resistance due to vasoconstrictor changes in the arterioles, or increased tonus in the larger vessels, with a strongly acting heart muscle forcing a normal, or in some cases an increased, volume output through the constricted vessels.

TREATMENT OF POSTOPERATIVE ADHESIONS

To the Editor:—Is there anything that can be done for adhesions after abdominal operations (three were done on my patient although I believe unnecessarily) aside from morphine? Please omit name.

M.D., New York.

Answer.—There is a general feeling among American surgeons that operations for relief of symptoms ascribable to abdominal adhesions are ill advised. It is assumed that separation of adhesions will be accompanied by the creation of raw surfaces and followed by the formation of fresh adhesion bands.

In general, operations for relief of adhesions yield a high percentage of satisfactory results, provided the adhesions are located in the lower part of the abdomen. The operation must be performed gently, patiently and with painstaking care. Deliberate inspection and careful manipulation of the adherent surfaces reveal natural lines of cleavage where the tissues may be separated by blunt dissection without creating fresh raw surfaces. The use of a rubber pack rather than gauze packing, blunt dissection in preference to cutting, and gentle separation in contrast with tearing, are all essential features in the technic. Methods available for the covering of raw surfaces, the employment of omental grafts, and other technical features in the detail of these most difficult operations cannot be discussed adequately in an abbreviated reply.

EOSINOPHILIA AND ASTHMA

To the Editor:—What is the relationship between eosinophilia and asthma? I read the other day that when a diagnosis of asthma is in doubt the finding of more than 2 per cent eosinophils confirmed the diagnosis. Please omit name.

M.D., Michigan.

Answer.—Eosinophilia occurs in most cases of true allergic bronchial asthma. Percentages vary—rarely less than 2 and frequently from 8 to 12 or even higher. It is an important point in arriving at the diagnosis. However, some cases show no increase in eosinophils. Eosinophilia is found not only in the blood but also in allergic lesions elsewhere, such as in the mucosa of allergic (hyperesthetic) rhinitis.

THERAPEUTICS OF IRON—USE OF ARSPHENAMINES AND SODIUM THIOSULPHATE

To the Editor:—1. What is the comparative value of iron by injection and by mouth? What is the best iron preparation for use hypodermically, indications for such use and efficacy of this medication? 2. Can neoarsphenamine and sulpharsphenamine be dissolved in a solution of sodium thiosulphate in using these arsenicals intravenously and does such a procedure ward off the ill effects of these drugs in susceptible persons? Kindly omit name.

M.D., New York.

Answer.—1. There is no advantage to the administration of iron by injection, excepting in cases of gastric intolerance. For this purpose, iron and ammonium citrate, 1 cc. of 10 per cent solution, is perhaps the most commonly used form. Though efficient, this method of administration is too painful and too liable to be followed by local and systemic reactions to be employed for any excepting unusual conditions.

2. Neoarsphenamine can be dissolved in sodium thiosulphate solution; and it is claimed by K. Hubschmann (*Urol. & Cutan. Rev.* **34**:91 [Feb.] 1930), on entirely insufficient experimental and clinical evidence, that this combination lessens the toxicity without impairing the activity of the arsenical. In general, it is considered to be much better to give the arsphenamine preparations alone, that is, without admixture with other substances, owing to the possibility of undesired chemical reactions or contamination.

JACKSON'S MEMBRANE

To the Editor:—I would like the definition, possible etiology, and treatment of Jackson's membrane. Please omit name.

M.D., New York.

Answer.—Jackson's membrane is a term usually applied to a broad filmy band or membrane covering the anterior wall of the cecum and first part of the ascending colon. It sometimes includes the appendix. There are usually numerous blood vessels giving it a congested appearance.

The colon is often bound to the parietal peritoneum, which sometimes produces kinking or obstruction to it or to the appendix. Dr. Jabez N. Jackson has emphasized the importance of these bands as a cause of local subacute or chronic symptoms, such as pain, tenderness, constipation, mucous colitis, meteorism, gastric symptoms and neurasthenia.

It is doubtful whether this contention is true except in instances wherein definite kinking or obstruction may be demonstrated by roentgenography or at operation. Consequently, the treatment of this condition is ordinarily unnecessary unless there is evidence of kinking or obstruction.

When treatment is indicated it should consist of division of the adhesions and peritonization of all denuded surfaces, if possible. In addition, the appendix should be removed and the abdomen thoroughly explored for other pathologic changes.

It is thought by some authors that these membranes which occur also in other locations on the colon and in the abdomen are due to a low grade infection in that region, while other writers believe that they are congenital in origin. The exact cause is not known.

ORAL USE OF OVARIAN PRODUCTS IN MENOPAUSE NOT ESTABLISHED

To the Editor:—I should like to know the present status of the oral use of ovarian products in the treatment of neurotic manifestations of menopause.

O. M. Unger, M.D., Providence, R. I.

Answer.—Rational as ovarian therapy may theoretically appear to be in some conditions, the actual results are rarely striking and often nil to the careful observer. Extensive clinical experience has failed to establish the value of the desiccated preparations administered orally. The Council on Pharmacy and Chemistry has omitted all desiccated ovary preparations for oral administration because long extended clinical use has failed to demonstrate the efficacy of the marketed brands of such preparations.

Thyroid extract in small amount, e. g., one-half grain (0.03 Gm.) once or twice daily, may help in the treatment of neurotic manifestations of the menopause. Most of these patients are benefited by outdoor life, free elimination, and abstinence from coffee.

OSTEOMYELITIS OF THE PATELLA

To the Editor:—I have a case of osteomyelitis of the patella in a boy, aged 14 years, due to a puncture wound. The condition was preceded by a large abscess over the knee and at present there is a suppurating cavity in the patella about 1 cm. in diameter. Does the treatment and the reaction to treatment differ from osteomyelitis in any other bone? Apparently the joint beneath is not involved.

M.D., Virgina.

Answer.—There are several local conditions that may modify the treatment of osteomyelitis of the patella. The first to be considered is the probable involvement of the prepatellar bursa. Owing to the history of a large abscess over the knee joint, the bursa was probably in the original suppurative process. The bursa was probably involved first, and the osteomyelitis secondary. At the operation, this sac should be dissected out; otherwise, the discharge may continue.

The local osteomyelitis of the patella should be treated, in general, as any osteomyelitis. However, one should be extremely careful in saucerizing and removing the irregular walls of the cavity in the patella to avoid opening into the knee joint, since this might result in at least ankylosis, if sepsis is avoided.

If careful saucerizing of the cavity and removal of the bursa with wide open drainage is done, prompt granulation of the wound should be expected.

HAMMOND'S MIXTURE

To the Editor:—Would you be so kind as to send me the formula of "Hammond's mixture"? I enclose stamped envelop for reply. Should you publish this, please omit my name.

M.D., Iowa.

Answer.—The formula for "Hammond's mixture" is:

Pepsin (scale)	12
Wood charcoal U. S. P.	24
Potassium bromide	64
Water to make	250

Pepsin is seldom indicated because the gastric juice usually contains sufficient pepsin for gastric digestion. Charcoal has long been administered in cases of flatulence, the prescribers evidently losing sight of the fact that when thoroughly wet it loses its property of absorbing gases. In view of these two facts, it would appear that the prescription would likely do no more than would a solution of potassium bromide itself.

FORMATION OF ALCOHOL IN THE BODY

To the Editor:—Permit me to add to your answer to Dr. A. D. Bush of Decatur, Ga., on formation of alcohol in body, in The Journal, August 23. The existence of alcohol in normal tissues was found also by Ford, Landsberg, Reach, Voeltz and Dietrich, Taylor and Schweisheimer (Ford: *New York M. J.* **15**:561, 1872. Reach: *Biochem. Ztschr.* **3**:326, 1907. Voeltz and Dietrich: *Biochem. Ztschr.* **40**:15, 1912. Taylor: *J. Biol. Chem.* **15**:217, 1913. Schweisheimer: *Deutsches Arch. f. klin. Med.* **109**:271, 1913). Dr. Bush will find this information in one of the textbooks from which he taught pharmacology (Sollmann's Manual of Pharmacology, ed. 2, p. 651).

Aaron Levine, M.D., Cincinnati.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 3, 1930. Basic Science. Sec., Mr. Louis E. Grebauer, Little Rock, Ark. Eclectic Board, Little Rock, Nov. 11 and 12, 1930. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith, Ark. Regular, Little Rock, Nov. 11-12, 1930. Sec., Dr. Sam J. Albright, Searcy, Ark. Homeopathic, Eureka Springs, Nov. 11, 1930. Sec., Dr. Allison A. Pringle, Eureka Springs, Ark.

Connecticut: Regular, Hartford, Nov. 11 and 12, 1930. Sec., Dr. T. P. Murdock, 147 W. Main St., Meriden, Conn. Homeopathic, New Haven, Nov. 10, 1930. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

Florida: Jacksonville, Nov. 10-11, 1930. Sec., Dr. W. M. Rowlett, P. O. Box 603, Tampa, Fla.

Georgia: Atlanta, Oct. 14-16, 1930. Sec., Dr. B. T. Wise, Americus, Ga.

Illinois: Chicago, Oct. 14-16, 1930. Supt., Mr. P. B. Johnson, Springfield, Ill.

Maine: Portland, Nov. 11-12, 1930. Sec., Dr. Adam P. Leighton, 192 State St., Portland, Me.

Massachusetts: Boston, Nov. 12-14, 1930. Sec., Dr. Frank M. Vaughan, 144 State House, Boston, Mass.

Michigan: Lansing, Oct. 14-16, 1930. Sec., Dr. F. C. Warnshuis, 1010 Macabee Bldg., Detroit, Mich.

Minnesota: Minneapolis, Oct 21-23, 1930. Sec., Dr. E J. Engberg, 524 Lowry Bldg., St. Paul, Minn.

Nebraska: Lincoln, Nov. 20-22, 1930. Sec., Mr Ernest M. Pollard, Lincoln, Neb.

Nevada: Carson City, Nov. 3-5, 1930 Sec., Dr. Edward E. Hamer, Carson City, Nev.

New Mexico: Santa Fe, Oct. 13-14, 1930. Sec., Dr. W. T. Joyner, 20-21 First National Bank Bldg., Roswell, N. M.

South Carolina: Columbia, Nov. 11, 1930. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia, S. C.

Texas: Waco, Nov. 18-20, 1930. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas, Texas.

West Virginia: Morgantown, Nov. 20, 1930. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

ADDITIONAL HOSPITALS AND LABORATORIES APPROVED

The Council on Medical Education and Hospitals of the American Medical Association has given its approval to the following hospitals and laboratories since the publication of the last previous list in The Journal, July 26:

Hospitals Approved for Intern Training:

Holy Cross Hospital, Chicago.
Illinois Masonic Hospital, Chicago.
Silver Cross Hospital, Joliet, Ill.
Charles S. Wilson Memorial Hospital, Johnson City, N. Y.
Troy Hospital, Troy, N. Y.

The following hospitals, which had been approved for interns for a number of years and were omitted from the list printed in The Journal, Aug. 16, 1930, are again fully approved for interns:

Providence Hospital, Washington, D. C.
Bethesda Hospital, Cincinnati.
Christ Hospital, Cincinnati.
Jewish Hospital, Cincinnati.
St. Mary Hospital, Cincinnati.

Hospitals Approved for Residencies in Specialties:

Peoria Municipal Tuberculosis Sanitarium, Peoria, Ill.
Hurley Hospital, Flint, Mich.
Albany Hospital, Albany, N. Y.
Kings County Hospital, Brooklyn.
Kingston Avenue Hospital, Brooklyn.
Buffalo State Hospital, Buffalo.

Pathologists Conducting Approved Clinical Laboratories:

Thomas Cajigas, M.D., director, Clinical Pathological Laboratory, Washington, D. C.
W. J. Muzzy, M.D., director, El Reno Sanitarium Laboratory, El Reno, Okla.

Ohio July Reciprocity Report

Dr. H. M. Platter, secretary of the State Medical Board of Ohio, reports 43 candidates licensed by reciprocity with other states and 2 by the endorsement of National Board of Medical Examiners credentials at a meeting held July 8, 1930. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine	(1929)	Arkansas
George Washington University Medical School	(1928)	Maryland
Howard University School of Medicine	(1929)	Virginia
Emory University School of Medicine	(1928)	Georgia
Northwestern University Medical School	(1929)	W. Virginia
Indiana University School of Medicine	(1929)	Indiana
State University of Iowa College of Medicine	(1926)	Iowa
University of Kansas School of M	[illegible]	Kansas
University of Louisville School	[illegible]	Kentucky
University of Maryland School o (1928) (1929) Maryland	[illegible]	W. Virginia
Detroit College of Medicine and Surgery	(1917)	Michigan
U. of Michigan M. S.	(1903) (1924) (1926) (1927) (1929, 2)	Michigan
St. Louis University School of Medicine (1929, 2) Missouri	(1929)	Louisiana
Columbia University College of Phys. and Surgs.	(1916)	New York
University of Buffalo School of Medicine	(1929, 2)	New York
Hahnemann Med. College and Hosp. of Philadelphia (1926) Kentucky, (1929) Indiana	(1928)	Penna.
Jefferson Medical College	(1926)	Penna.
Temple University School of Medicine	(1918)	W. Virginia
University of Pennsylvania School of Medicine	(1927)	Penna.
Medical College of the State of South Carolina	(1929)	S. Carolina
Meharry Medical College (1928, 2) Tennessee	(1922) Alabama, (1924)	Virginia
University of Toronto Faculty of Medicine	(1926)	Michigan
University of Western Ontario Medical School	(1913)	Tennessee

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
University of Pennsylvania School of Medicine	(1924)	N. B. M. Ex.
University of Jena Faculty of Medicine	(1919)	N. B. M. Ex.

Indiana Reciprocity Certificates

Dr. W. R. Davidson, secretary of the Board of Registration and Examination of Indiana, reports 25 permanent certificates and 9 temporary permits issued to physicians through reciprocity with other states from Jan. 1 to April 2, 1930. The following colleges were represented:

College PERMANENT CERTIFICATES	Year Grad.	Reciprocity with
Georgetown University School of Medicine	(1899)	Iowa
Hahnemann Medical College and Hospital, Chicago	(1906)	Kansas
Loyola University School of Medicine	(1929)	Michigan
Northwestern Univ. Med. School	(1927) Michigan, (1928)	Illinois
Rush Medical College (1927, 2) (1928, 2) (1929, 2) Illinois	(1925)	Minnesota
University of Illinois College of Medicine	(1929)	Illinois
State University of Iowa College of Medicine	(1923)	Michigan
University of Louisville School of Medicine	(1928, 2)	Kentucky
Johns Hopkins University School of Medicine	(1921)	Ohio
University of Michigan Medical School	(1928)	Michigan
St. Louis University School of Medicine	(1926)	Missouri
Starling Medical College	(1880)	Ohio
Western Reserve University School of Medicine	(1923)	Ohio
Jefferson Medical College	(1912)	Penna.
Woman's Medical College of Pennsylvania	(1924)	Ohio
Meharry Medical College	(1913)	Tennessee
University of Tennessee College of Medicine	(1910)	Tennessee

College TEMPORARY PERMITS	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Los Angeles	(1918)	California
Howard University School of Medicine	(1928)	Dist. Colum.
Northwestern University Medical School	(1923)	Iowa
Rush Medical College	(1928) (1929)	Illinois
University of Illinois College of Medicine	(1928)	Illinois
University of Minnesota Medical School	(1925)	Minnesota
Albany Medical College	(1908)	New York
University of Budapest Faculty of Medicine	(1915)	Illinois

Colorado April Examination

Dr. William W. Williams, secretary of the Board of Medical Examiners of Colorado, reports the examination held at Denver, April 1, 1930. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Three candidates were examined and passed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
University of Illinois College of Medicine	(1929)	87.2*
Harvard University Medical School	(1929)	81.5
University of Pennsylvania School of Medicine	(1928)	89.1

Dr. Williams also reports the endorsement of credentials of 11 physicians at the meeting held April 1, 1930. The following colleges were represented:

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Hering Medical College	(1899)	Illinois
University of Illinois College of Medicine (1922) Illinois	(1912)	Wyoming
State Univ. of Iowa College of Med.	(1923) Utah, (1927)	Iowa
Kansas Medical College	(1906)	Kansas
Johns Hopkins University Medical School	(1923)	Maryland
University Medical College of Kansas City, Mo.	(1903)	Kansas
University of Nebraska Coll. of Med.	(1928) Kansas, (1929)	Nebraska
Vanderbilt University School of Medicine	(1924)	Arkansas

* This candidate has received his four year certificate and will receive an M.D. degree on completion of one year's internship in a hospital.

Book Notices

Pernicious Anemia. By Leybourne Stanley Patrick Davidson, B.A., M.D., F.R.C.P.E., Lecturer in Systematic and in Clinical Medicine in the University of Edinburgh, and George Lovell Gulland, C.M.G., LL.D., M.D., Consulting Physician to the Royal Infirmary, Edinburgh. With appendix on Dietetic Treatment by Ruth Pybus, Sister Dietitian, Royal Infirmary, Edinburgh. With introduction by Lawrence D. Thompson, M.D., Assistant Professor of Clinical Medicine, Washington University School of Medicine. Cloth. Price, $8.50. Pp. 293, with 30 illustrations. St. Louis: C. V. Mosby Company, 1930.

Recent investigations of fundamental importance dealing with pernicious anemia were doubtless the inspiration for this monograph. The authors have considered critically all of the important contributions concerning this disease, from the earliest description to the recent classic investigations of Peabody, Minot, Murphy, Cohn and Castle. All aspects of the disease are discussed comprehensively, including the historical development of knowledge, the physiology of blood formation and destruction, the pathology and etiology of the disease, and various clinical considerations dealing with the diagnosis, prognosis and treatment. Of unusual interest are the views of the authors concerning the etiology of the disease. They are in accord with the growing opinion in this country as they accept Cohnheim's original belief that the abnormal formation of blood is the primary factor in the disease and reject Hunter's hypothesis, which emphasizes hemolysis as the essential feature. They do not accept completely, however, the observations of Castle, which appear to suggest strongly that the underlying cause of pernicious anemia is an inability of the gastric mucosa to produce a substance which, acting in protein, elaborates an unknown factor controlling the maturation of the red blood cells. The chapter devoted to diagnosis is well presented and, in addition to discussing the usual diseases from which the pernicious anemia must be differentiated, properly emphasizes the confusion that may arise between it and aleukemic leukemia. The section on treatment is well written, and especial attention is given to the use of liver or liver extract, which the authors consider gives entirely satisfactory results without any subsidiary treatment. It does not seem logical, however, as they suggest, to omit the liver therapy temporarily and administer iron. Nor is there convincing evidence to indicate that dilute hydrochloric acid is essential to the treatment. The importance of infection is discussed, as it is known that when such a condition is present the action of liver is less efficient. This applies chiefly to acute infections with a febrile reaction rather than to "sepsis" in the sense of a chronic abscess of the teeth. Blood transfusion is recommended, as it is an emergency measure which maintains life until liver therapy becomes effective. It is difficult to agree with the authors that the combination of transfusion and liver therapy produces a bone marrow stimulation far greater than either procedure alone as evidenced by a greater reticulocyte rise. The latter depends on the initial level of the red blood cell count and it is possible in some instances that transfusions just prior to treatment with liver may diminish the height of the reticulocyte curve. In general, it may be said that the book is thoughtfully and carefully written by observers who are thoroughly familiar with the subject. It is to be commended to those who are especially interested in diseases of the blood as well as to students and practicing physicians.

Physiologie pathologique, chirurgicale; inflammations, effets des traumatismes, Réparation des plaies, greffes, maladies des os, des articulations, des vaisseaux et des nerfs. Par R. Leriche, professeur de clinique chirurgicale à la Faculté de Strasbourg, et A. Policard, professeur d'histologie à la Faculté de Lyon. Paper. Price, 26 francs. Pp. 212. Paris: Masson & Cie, 1930.

This comprises a series of ten brief essays on the pathologic physiology of bones, joints, tendons, muscles, bursae, connective tissue, blood vessels, peripheral nerves, and transplants (grafts) of these tissues. The changes in the subcutaneous tissue caused by trauma and seen in sterile and septic inflammation are reviewed. The discussion of the pathologic physiology of bones and joints is of course based on the authors' humoral theory of ossification and bone absorption. "Anything that produces an active hyperemia in bone could be the origin of a process which some day results in arthritis deformans. Traumatism, infection, malformations, none of these are direct causes. Trauma acts on bone by causing a vasomotor disturbance. If there is infection the bacteria or their toxins do not affect directly the synovia or bone, but only through causing a vascular disturbance; there being a local vasomotor disturbance usually in hyperemia. Once such processes are begun, they progress of themselves." The discussion of the pathologic physiology of peripheral nerves and vessels includes Leriche's recent and well known experimental work on the effect of sympathetic nerve operations on vascular tone. In the pathogenesis of inflammatory edema, a "nervous vasoparietal" factor is emphasized. The final essay, dealing with tissue transplants, is a brief review of the generally accepted principles on the subject. The authors state in the preface that their treatise is an expression of personal opinion and is the result of fifteen years of observation and experimentation. Much that is said, however, coincides with the generally accepted views on the subject. The book is written in the clear concise style typical of the best French works. There are no illustrations nor is there a bibliography. While not intended for students, the work may be profitably read by them for a correlation of certain phases of physiology and surgery. For the surgeon, this book offers an attractive and brief scientific discussion of many problems confronting him in his daily work and presents numerous suggestions for further experimental work.

A Hemato-Respiratory Study of 101 Consecutive Cases of Stammering. By Max Trumper. A thesis presented to the faculty of the graduate school in partial fulfillment of the requirements for the degree of Doctor of Philosophy. Paper. Price, $1. Pp. 72, with illustrations. Philadelphia, 1928.

This details a research into the conditions of breathing and of blood in 103 stammerers, of whom 80 were adults. About half of the adults had low vital capacity (the greatest amount of air that can be expired after a maximum inspiration). One third were shallow breathers. "The cases exhibited a correlation between the type of breathing and the red cell count and hemoglobin content." Shallow breathing was compensated by a high red count and high hemoglobin. In some cases, deep breathing compensated for low vital capacity. "When the compensation was adequate, the red cell count and hemoglobin were normal, where incomplete the erythrocytes and hemoglobin were increased." In other cases in which depth of breathing was normal, the blood observations also were normal. Such studies should eventually disclose either a physical correspondence or a difference between the stammerer and the nonstammerer. In this paper a similar study of nonstammerers is not provided for such comparison. Moreover, since confirmed stammerers were studied, whether the abnormal observations, when present, should be reckoned on the side of cause or of effect is not clear. The study is a worthy one and should be continued and extended.

La radiothérapie pénétrante. Par MM. Ledoux-Lebard, chargé de cours de radiologie clinique à la Faculté de médecine de Paris, et Étienne Piot, électroradiologiste des Hôpitaux de Paris. Paper. Price, 15 francs. Paris: Gauthier-Villars & Cie, 1930.

This is a delightfully readable and valuable summary of the field of high voltage roentgen therapy. The authors call attention to the fact that high voltage roentgen therapy can be administered with a radiation that is only slightly penetrating and, inversely, that penetrating filtered radiation may be utilized in superficial radiotherapy. He defines high voltage roentgen therapy as that given by utilizing a tension of 200 kilovolts and a filtration of 1 mm. copper with a minimum effective wavelength of 0.17 angstrom unit. To deliver to an organ deeply situated a sufficient radiation to obtain therapeutic action without damaging the skin or intervening organs is the purpose of high voltage roentgen therapy, but this object cannot be truly and completely realized except by utilizing "penetrating" roentgen therapy. The authors propose the classification agreed to by the Commission of Therapeutics of the Society of Medical Radiology of France: for superficial therapy, 50 kilovolts, a 3 mm. aluminum filter, and an effective wavelength of 0.35 angstrom unit; for therapy requiring medium penetration, 150 kilovolts, 0.05 mm. of copper filter, and an effective wavelength of 0.15 angstrom unit; for penetrating roentgen therapy, 200 kilovolts, 1 mm. of copper or zinc filter, and an effective wavelength of 0.10 angstrom unit. There are chapters on the physiologic and biologic bases, the technic of roentgen therapy and the clinical indications in cancerous and noncancerous diseases, the dose being always expressed in roentgens, the international unit of x-ray dosage. The r universally adopted in Germany and in this country is equivalent to 2.5 r of the French standard.

CLINICAL NUTRITION AND FEEDING IN INFANCY AND CHILDHOOD. By *J. Newton Kugelmass, M.D., Ph.D., Sc.D.*, Associate Attending Pediatrician, Fifth Avenue Hospital. Cloth. Price, $6. Pp. 345, with 37 illustrations. Philadelphia: J. B. Lippincott Company, 1930.

As stated in its preface, this book is intended to supply the general practitioner with information concerning the etiology, diagnosis and treatment of the problems of pediatrics involving nutrition. The first four chapters deal with the normal energy and foodstuff requirements, properties of the foodstuffs, prenatal nutrition, normal breast and artificial feeding, and normal child feeding. In considering the physiology of nutrition, the author reviews various theories and quotes the most recent advances in physiologic chemistry and metabolism. The space given to normal artificial feeding is scanty. There is a short chapter on the alimentary diseases. The nutritional diseases of infancy are designated as acute intestinal indigestion and acute intestinal intoxication. Treatment of these conditions is stressed and is in general sound, although the use of cathartics and a starvation period as long as twenty-four or forty-eight hours might be questioned in some pediatric circles. The chapter on deficiency diseases includes discussions on rickets, scurvy, beriberi, xerophthalmia and acrodynia. Malnutrition and marasmus are included in this chapter, as is dental caries. The chapter on metabolic diseases includes detailed and technical discussions of the acid-base mechanism and alkalosis. These discussions are rather technical and will probably prove too much for the average general practitioner. The diets for obesity and diabetes mellitus are excellent. The nephritides are considered under the general heading of metabolic diseases, but they would perhaps best deserve a separate chapter. Tetany is considered separate from rickets, and the ketogenic dietary treatment of epilepsy is given ample space. The ketogenic diet, as the most rational treatment for chorea, does not meet with universal approbation. The chapter on blood diseases is quite complete; however, the statement that ultraviolet radiation from natural or artificial sources increases the red cells and hemoglobin and prolongs the life of the erythrocytes has not been substantiated experimentally. Hemophilia is generally considered a purely familial disease and is probably uninfluenced by diet. The chapter on diet in infectious diseases is brief and to the point, and the book concludes with tables of various food values. The book is well illustrated throughout and food tables for the various conditions are included in each chapter for ready reference.

ÉTUDES RADIOLOGIQUES SUR LE POUMON ET LE MÉDIASTIN. Par M. de Abreu, de l'Institut Brésilien des sciences et de l'Académie de medecine de Rio. Paper. Price, 50 francs. Pp. 200, with illustrations. Paris: Masson & Cie, 1930.

Here is an attempt to reach more accurate radiologic diagnosis and prognosis by application of mathematical formulas to roentgenography of the chest. The first part deals with roentgenography of the lung. It describes methods for finding the square area of lung lesions and gives a scale of shades determined by the density of shadows cast by normal organs in the thorax. Mathematical formulas are then given by means of which the volume of the lesions may be estimated from their square area and the density as indicated by the shade of the lesions. The author emphasizes the value of serial examinations for prognosis. The second part deals with roentgenography of the mediastinum. The author advances the theory that differences in depth of shadow cast by various mediastinal organs are not due to different densities of the organs, as has been commonly accepted. He asserts that the depth of shadow and its size as well as its definition are determined entirely by the geometric relations existing in the mediastinum and particularly by the proximity of the mediastinal surfaces of the lungs which afford a contrasting surface by means of which definition is obtained with different degrees of clarity according to the angles at which the rays penetrate. He states that he has substantiated this theory by a series of wax models of the mediastinal space. These models were homogeneous throughout; yet films showed virtually the same shadows as are obtained in a normal mediastinum. The third part is a discussion of the possibility of obtaining mathematical knowledge of the blood vessels in the mediastinum and attempts to determine accurately enlargement of the vessels, including the breadth and length of the aortic arch. The book is profusely illustrated with roentgenograms and diagrams showing the geometry of the chest. Numerous equations are given. While some will not agree with the theory ascribing all differences in density in mediastinal pictures to geometric relations alone, there is no doubt that the author has made progress toward greater accuracy in roentgenologic diagnosis and prognosis and the reader cannot fail to be impressed by the bringing together of clinical, pathologic and roentgenologic as well as mathematical data.

LES ALIÉNÉS ET LES CORRECTIONNAIRES À SAINT-LAZARE AU XVII^{e} ET AU XVIII^{e} SIÈCLES. *Par le Docteur Jacques Vié*, médecin des Asiles. Paper. Pp. 251. Paris: Félix Alcan, 1930.

Saint Lazare began in 1124 as a hospital for lepers and later under Vincent de Paul it became the center of the congregation of the mission but continued to receive patients. This book is a study of the great monastery and hospital from 1632 to 1789, during which time it served as an asylum for the mentally diseased and as a house of correction. The methods of placement, classification and treatment are studied in detail. The book should be of much interest to those interested in the history of institutional care of mentally diseased and abnormal persons.

PHYSIOLOGY AND BIOCHEMISTRY OF BACTERIA. Vol. II: Effects of *Environment upon Microörganisms*. *By R. E. Buchanan, Ph.D.*, Professor of Bacteriology and Bacteriologist of the Iowa Agricultural Experiment Station, Iowa State College, and Ellis I. Fulmer, Ph.D., Professor of Biophysical Chemistry, Department of Chemistry, Iowa State College. Cloth. Price, $7.50. Pp. 709. Baltimore: Williams & Wilkins Company, 1930.

PHYSIOLOGY AND BIOCHEMISTRY OF BACTERIA. Volume III: Effects of Microörganisms upon Environment. Fermentative and Other Changes *Produced*. *By R. E. Buchanan, Ph.D., Professor of Bacteriology* and Bacteriologist of the Iowa Agricultural Experiment Station, Iowa State College, and Ellis I Fulmer, Ph.D., Professor of Biophysical Chemistry, Department of Chemistry, Iowa State College. Cloth. Price, $7.50. Pp. 575. Baltimore: Williams & Wilkins Company, 1930.

These two volumes present an extensive compilation of the literature relating to the physiology of micro-organisms. Volume II deals with the effect of the physical and chemical environment. It presents first of all certain laws relating to rates of reaction. This is followed by sections on the effects of temperature on morphology, metabolism and the various phases of growth and death rates of micro-organisms, the effects of rays and emanations, mechanical pressure, osmotic pressure, surface tension and other physical environments. The section dealing with the chemical environment takes up in turn the effects of such an environment on growth and death rates, the subject of disinfection and disinfectants, the influence of various inorganic compounds and their ions, and the effect of both non-nitrogenous and nitrogenous organic compounds. Volume III covers the subjects of physiologic interrelationships among micro-organisms, enzymes, and the chemical changes produced by micro-organisms in inorganic compounds, in non-nitrogenous organic compounds and in the nitrogenous organic compounds. The scope of these two volumes is enormous and embraces the more fundamental aspects of a large share of the field of microbiology. There is much material collected here which has not heretofore been brought together and the work will therefore serve as a useful and convenient or, indeed, indispensable reference. While it is recognized that any large compilation presents problems in the arrangement of material, it would seem that all of the information on the utilization of the sugars and alcohols, for example, might have been brought together in a section in one volume rather than divided between a section in each of the two volumes. The same holds true for other non-nitrogenous and the nitrogenous organic compounds. To gain a complete picture of the reports on the uses of these substances and their decomposition products, one must consult both volumes. It is to be regretted, too, that the publishers have not printed the headings of subsections in more conspicuous type. Such points, however, are overshadowed by the really enormous amount of work brought together and summarized with full bibliographies and index. Since the progress of a science is often well served by pausing to review disclosures of the past, bacteriologists will be distinctly indebted to the authors for the production of these volumes.

Stereoskopischer Atlas der Äusseren Erkrankungen des Auges nach farbigen Photographien fur Studium und Ärztliche Fortbildung mit begleitendem Text. Lieferung 2. Von Karl Wessely, Professor in München. Boards. Price, 12 marks. Ten plates (11-20). Munich: J. F. Bergmann, 1930.

This atlas is published in ten sections, and the second group of ten pictures which has just appeared includes two which demonstrate the author's treatment of serpiginous ulcer of the cornea. All the photographs maintain the high standard set in the first series, and the next instalment is anticipated with pleasure and certain profit.

Medicolegal

When Damages Are Payable for Fright

(Baltimore & Ohio R. Co. v. McBride (U. S.), 36 Fed. (2d) 841)

McBride was an engineer on one of the defendant's trains. While he was so engaged, a plug blew out of the engine boiler. He was badly scalded and was compelled to jump from the cab, landing between the rails of an adjacent track. He suffered multiple injuries, including a fracture of the left leg. As he lay thus disabled, he was further shocked and terrified by the approach of a through train on the track on which he lay and by calls to stop it. The engine was in fact stopped only a few feet from him. McBride brought action to recover damages, and from a judgment in his favor the railroad company appealed to the U. S. Circuit Court of Appeals, Sixth Circuit.

On behalf of the railroad company it was contended that no causal relation had been shown between the blowing out of the plug and the subsequent fright or nervous shock of the injured engineer; that no damages could be recovered for such unforeseen and unforeseeable results as were claimed to have occurred in the present case; and that the fright and nervous shock being disconnected from the original accident called for the application of the doctrine that no recovery can be had for nervous shock unaccompanied by physical injury.

The legal rule, however, that requires that the accident for which the plaintiff is responsible shall be the proximate cause of the defendant's injuries does not require that the defendant must have been able to foresee the precise injuries which in fact resulted, but only to foresee that results of a generally injurious nature might be anticipated from the negligent act or omission. The question was, said the court, "Did the facts constitute a continuous succession of events, so linked together as to make a natural whole, or was there some new and independent cause intervening between the wrong and the injury?" Viewed in the light of all of the circumstances of the case, severe nervous shock seems not only prospectively probable as a result of the railroad company's negligence, but rather as certain to follow. There was no intervening efficient cause and no break in the chain of causal connection. The final result was in a very true sense foreseeable.

There was no ground for the application of the doctrine that damage from nervous shock, unattended by physical injury, is too remote to support a recovery of damages. Where both the physical injury and the nervous shock are proximately caused by the same act of negligence, there is no necessity that the shock result exclusively from the physical injury. Each forms a part of the natural and indivisible result, and the fact that the plaintiff has suffered physical injury as a part of the aggregate of the attending results precludes the defense that the connection between the negligent cause and the resulting nervous shock is too remote for legal contemplation.

The judgment of trial court in favor of the injured engineer was affirmed.

Public and Private Hospitals Distinguished

(Brister v. Leflore County (Miss.), 125 So. 816)

In July, 1916, the King's Daughters and Sons Circle and the city of Greenwood and the county of Leflore entered into an agreement for the erection of a hospital and for its joint control and management. Later, in order to enlarge the hospital, the voters of the county of Leflore authorized the issuance of bonds to raise $30,000. A taxpayer brought suit to prevent the bond issue, alleging that it would be invalid, because section 183 of the constitution, 1890, forbids any county, city, town or other municipal corporation from making an appropriation or loaning its credit in aid of any railroad or other corporation or association. From a judgment against him, the taxpayer appealed to the Supreme Court of Mississippi, Division B.

If, said the Supreme Court, the corporation sought to be aided is a public corporation, it is not covered by the provisions of the constitution stated; if it is a private corporation, the constitutional inhibition is clear and distinct. The question is, therefore, Is the King's Daughters and Sons Circle a private corporation within the meaning of the constitutional provision stated? Public corporations, the Supreme Court of New York has said, are the instrumentalities of the state (or of a subdivision thereof), founded and owned by it in the public interest, supported (in whole or in part) by public funds, and governed by managers deriving their authority from the state (or from a subdivision thereof). *Van Campen* v. *Olean General Hospital*, 210 App. Div. 204, 205 N. Y. S. 554, 555. The rule is, said the court:

> A corporation therefore is not a public corporation merely because it is founded for a public charity. . . . While an institution founded . . . for purposes of general charity such as a hospital for the poor, the sick, the disabled or the insane may well be regarded as a public institution, yet in the sense of the law a far more limited, as well as a more exact, meaning is intended by a public institution or corporation. 14 Corpus Juris 73.

The ultimate test is this: Is the continuity of the corporation, and its control and management, under the power of the public through public agents who are accountable to the government?

The legislative act authorizing the proposed bond issue provides that the expenditure of the money "shall be under the control of the board of supervisors." When the money was expended, however, it would go into buildings. These, being real estate, would merge into the title now held by the King's Daughters and Sons Circle, and the money would be represented by property the title to which would be in the hands of a private corporation. The stockholders and board of directors of that corporation, being under no legal control by the state or county, would have the full legal power to sell and convey such real estate and to divert it from the public uses for which it was intended. The conclusion is inescapable, therefore, that the appropriation proposed would be an appropriation to a private corporation and in clear violation of the constitution. The fact that the constitution authorizes the legislature to provide for the care of the indigent sick in hospitals does not help the matter. The property of one person may not be taken and given over to another as a pure donation or gratuity, and such taking and giving is no more permissible when it is done under the guise of taxation than it would be if it were done by direct force or violence.

There is, however, said the court, no legal reason why a county, a municipality and a private person or corporation may not, on a joint three-party arrangement, acquire and operate a public hospital, if the arrangement is such that the majority control remains in the public, through responsible public agents or managers, or if the services to be rendered are covered by an obligatory contract so specific in its provisions that it can be enforced in a court of competent jurisdiction by the public authorities. There must, however, be such a just and reasonable relation between the services to be rendered and the payments made as to avoid the charge that a part of the payment made or to be made out of public funds is in fact only a donation or gratuity.

The decision of the trial court was reversed and the cause remanded.

Foreign Body in Bronchus Following Tonsillectomy

(Emery v. Fisher (Me.), 148 Atl. 677)

The defendant, Fisher, had been employed to remove the plaintiff's diseased tonsils. While ether was being administered preparatory to the operation, the patient became cyanotic. The defendant-physician, who was in an adjoining room preparing to perform the operation, was hurriedly called. He used a mouth gag to force the patient's mouth open, to enable him to breathe. Soon after the patient resumed breathing, it was discovered that a rubber tip was missing from the end of the mouth gag. Search for it was unsuccessful. The defendant suspected that it had slipped off, or been pulled off by contact with the patient's teeth, and had been either swallowed or, what seemed less likely, drawn into a bronchus. In the opinion of the defendant, however, good judgment and good surgical practice demanded that, notwithstanding the loss of the rubber tip and regardless of its place of lodgment, the contemplated operation be performed, and he therefore removed the patient's tonsils. After a further search had been made for the rubber tip, without success, the defendant suggested to the patient's attending physician that the patient's stools be carefully examined during the next few days to determine whether or not the tip had passed into the digestive tract, and that the patient be watched for the development of a cough, indicating the presence of the rubber tip in a bronchus. A cough did develop, a roentgenogram was taken, and the tip was discovered and removed. The patient thereupon brought suit against the physician, Fisher, who had performed the tonsillectomy, in the Supreme Judicial Court, York County. The issue submitted to the jury was whether the tip found its resting place in the patient's bronchus by reason of the negligence of the defendant or of an accident not attributable to lack of due care on his part. The patient contended, too, that after the physician-defendant, when about to operate, found that the rubber tip had disappeared and realized the possibility of its lodgment in a bronchus, he should have taken steps immediately to locate it and, having so located it, he should have removed it at once, instead of proceeding with the operation. After a verdict in favor of the patient, the physician appealed to the Supreme Judicial Court of Maine.

It was strongly urged by counsel for the patient that the tip did not become detached from the mouth gag during the emergency caused by the cyanotic condition of the patient, but a fair reading of the record, said the appellate court, established the truth of the defendant's contention that it was lost at that time. There was no evidence that the mouth gag was unfit for use. Assuming, then, that the rubber tip was lost during the emergency, no act of negligence, either of omission or commission, on the part of the defendant caused the injury of which the patient complained. Whether, after having failed to locate the lost rubber tip and suspecting that it might have lodged in a bronchus, the physician should have taken further steps to locate it and, having located it in a bronchus, should have removed it at once, instead of proceeding with the tonsillectomy, was distinctly a matter of judgment for the operating physician. All that was eventually done must necessarily have been done if the tonsil operation had been deferred. The only difference would have been the removal of the rubber tip a few days earlier. The patient, however, suffered no harm from the delay and was subjected to no appreciable damage. All of the experts summoned by the patient united in commending the course which the defendant pursued.

The verdict of the jury apparently rested on no more secure foundation than the facts that the rubber tip found its way into the plaintiff's bronchus and that the plaintiff was thereby subjected to considerable expense and to the annoyance of another operation. Surgeons, however, neither warrant against accidents nor guarantee the results of their operations. Their liability is limited within certain clearly defined lines; a surgeon contracts that he possesses ordinary skill, that he will use ordinary care, and that he will exercise his best judgment in the application of his skill to the case which he undertakes. No claim was made that the defendant in the present case was not skilled in his profession. There was no evidence to warrant the assumption that he did not use ordinary care and exercise his best judgment in the application of his skill to the case. An unfortunate result, however, arising from an accident, excusable under the circumstances, was made the basis of a finding of negligence. While the Supreme Judicial Court does not review questions of fact, yet when a conclusion of fact is without support in evidence, a question of law is raised, which the court may properly consider. To justify the court in sustaining a verdict, "there must be substantial evidence in support of the verdict—evidence that is reasonable and coherent, and so consistent with the circumstances and probabilities in the case as to raise a fair presumption of its truth." A verdict of a jury on matters of fact cannot be the basis of a judgment where there is no evidence to support it, or when the jury had made inferences contrary to all reason and logic. The appeal of the physician-defendant, therefore, from the verdict in favor of the patient was sustained.

Workmen's Compensation Acts: Detachment of Retina Not Due to Accident.—The claimant, a carpenter, fell from a stepladder early in May, 1928, while engaged in his work. He continued to work that day and for about three weeks thereafter, although his eye was bloodshot after the accident and there was some pain and blurring of vision. Then, May 23, he became suddenly blind in his right eye. The state industrial board awarded compensation, and the employer appealed. The difficulty, said the Supreme Court of New York, Appellate Division, Third Department, is to identify the blindness with the accident. Such identification must depend on medical testimony. Eminent oculists have been called, however, but none is able to state with reasonable certainty that the fall from the stepladder was the cause of the claimant's condition. Some of these oculists have eliminated practically every other cause, but for some unexplained reason they hesitate to express a definite opinion that the origin of the detached retina was in the accident. They say it is "possible," but go no further. In the absence of other evidence leading to a reasonable conclusion, this is not sufficient. The finding of the state industrial board that the detachment of the retina arose naturally and unavoidably from the accident is therefore not sustained by the evidence. The award was reversed and the claim remitted to the board.—*Wood v. W. E. Joyce Co., Inc., et al. (N. Y.), 239 N. Y. S. 110.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, October 27-31. Dr. W. P. Wherry, Medical Arts Building, Omaha, Secretary.

American Academy of Physical Therapy, Boston, October 22-24. Dr. Thomas L. Smyth, 111 North Eighth Street, Allentown, Pennsylvania, Secretary.

American Association of Railway Surgeons, Chicago, November 5-7. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American College of Surgeons, Philadelphia, October 13-17. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Hospital Association, New Orleans, October 20-24. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.

American Public Health Association, Fort Worth, Texas, October 27-31. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

Association of American Medical Colleges, Denver, October 14-16. Dr. Fred C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Central States Pediatric Society, Memphis, Tenn., November 7-8. Dr. A. H. Parmelee, 310 South Michigan Boulevard, Chicago, Secretary.

Delaware, Medical Society of, Dover, Oct. 14-15. Dr. W. O. La Motte, Medical Arts Building, Wilmington, Secretary.

Interstate Postgraduate Medical Association of North America, Minneapolis, October 20-24. Dr. W. B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

Medical and Surgical Association of the Southwest, El Paso, Texas, November 6-8. Dr. W. Warner Watkins, Box 1587, Phoenix, Ariz., Secretary.

Mississippi Valley Conference on Tuberculosis, Rockford, Ill., October 14-16. Dr. Robinson Bosworth, Box 1005, Rockford, Secretary.

Missouri Valley, Medical Society of the, Des Moines, Iowa, October 15-17. Dr. Joseph D. McCarthy, 107 South Seventeenth Street, Omaha, Secretary.

Radiological Society of North America, Los Angeles, December 1-5. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Southern Medical Association, Louisville, Ky., November 11-14. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Virginia, Medical Society of, Norfolk, October 21-23. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

5: 685-826 (Aug.) 1930

*Bundle-Branch Block with Short P-R Interval in Healthy Young People Prone to Paroxysmal Tachycardia. L. Wolff and P. D. White, Boston, and J. Parkinson, London, England.—p. 685.

*Subsequent Course and Prognosis in Coronary Thrombosis. L. A. Conner and E. Holt, New York.—p. 705.

*Excitatory Process Observed in Exposed Human Heart. P. S. Barker, A. G. MacLeod and J. Alexander, Ann Arbor, Mich.—p. 720.

Coronary Arteries of Dog. R. A. Moore, Cleveland.—p. 743.

Variations in Heart Block Sometimes Attributed to Supernormal Recovery Phase. D. Luten and S. Pope, II, St. Louis.—p. 750.

*Epinephrine Test in Hypertension. J. Jensen, St. Louis.—p. 763.

Elasticity (*Extensibility*) of *Aorta of Human Beings.* W. M. Yater, Washington, D. C., and I. W. Birkeland, Rochester, Minn.—p. 781.

*Polypoid Fibroma of Left Auricle (So-Called Cardiac Myxoma) Causing Ball-Valve Action: Case. G. H. Houck and G. A. Bennett, Boston. —p. 787.

*Aneurysms of Bronchial Arteries. M. Jacobi, New York.—p. 795.

Plateau R-T in Case of Lobar Pneumonia. M. C. Shearer, New York. —p. 801.

Bundle-Branch Block with Short P-R Interval in Healthy Young People Prone to Paroxysmal Tachycardia.—Eleven cases are reported by Wolff et al. of an unusual cardiac mechanism, heretofore undescribed as such, consisting of functional bundle-branch block and abnormally short P-R interval, occurring mostly in otherwise healthy young people with paroxysms of tachycardia or of auricular fibrillation. From a study of eleven cases they conclude that: (*a*) Aberrant ventricular complexes of the type generally recognized as indicating bundle-branch block may occur in healthy people with normal hearts. (*b*) Vagal stimulation is capable of altering markedly the form of the ventricular complex and may be responsible for the occurrence of complete bundle-branch block curves in apparently normal hearts at normal rates of beating. (*c*) Vagal stimulation may shorten markedly the P-R interval without the production of auriculoventricular nodal rhythm, and without dislocating the auricular pacemaker. (*d*) In the group of cases reported, paroxysmal tachycardia and auricular fibrillation are associated with the nervous control of the heart. (*e*) The recognition of functional bundle-branch block is of considerable practical importance. The combination of intraventricular block with abnormally short P-R interval, interchangeable with normal ventricular complexes with longer P-R interval (reversion spontaneous or following exercise or atropinization) in healthy young people with paroxysmal tachycardia (or auricular fibrillation) is distinctive. (*f*) This mechanism is apparently not indicative of disease of the heart.

Course and Prognosis in Coronary Thrombosis.—The records of 287 cases of coronary thrombosis have been studied by Conner and Holt with respect to the clinical course of the disease from the time of the first attack. Approximately 85 per cent of these cases were found in men and 15 per cent in women. An analysis of the age incidence at the time of the first attack discloses the fact that in one third of all the cases the first attack occurred before the fifty-first year and in three fourths of the cases before the sixty-first year. It seems evident, therefore, that coronary thrombosis must be regarded as essentially a disease of early middle life rather than of elderly life as it is usually held to be. Evidence of an arterial hypertension was found in 34 per cent of the cases; of syphilis in 14 per cent, and of diabetes in 10 per cent. Of the 287 patients studied, 117 are known to be living and 142 to have died. The immediate mortality in the first attack was 16.2 per cent. Of 117 patients who recovered satisfactorily from the first attack, 75 per cent were in good health at the end of one year; 56 per cent at the end of two years; 21 per cent at five years, and 3.4 per cent at ten years. One patient remained in good health for seventeen years and died in a second attack eighteen years after the first. In 62 per cent of the patients the first attack supervened, without antecedent circulatory symptoms, in persons who had no reason to doubt the integrity of the heart. A single attack only of thrombosis is recorded in 67 per cent of all the patients; two attacks occurred in 24 per cent; three attacks in 4 per cent, and from four to seven attacks in 5 per cent. Of the patients having but a single attack, one half are living and one third are in good health. Among the patients having two or more attacks, the time interval between the first and the second attack was less than one year in half of the cases and in the other half varied from one to eighteen years. Signs of arterial embolism appeared forty-nine times among forty-two patients. Twenty-eight of the embolic attacks involved the systemic arteries and twenty-one the pulmonary artery. Although the immediate mortality in attacks of coronary thrombosis is higher when the initial symptoms are severe than when they are mild, yet almost one third of the patients who recovered from the attack had symptoms of very severe character.

Excitatory Process Observed in Exposed Human Heart.—A study of the arrival of the excitation process at a number of points on the surface of the human heart with reference to the beginning of R in lead II was made by Barker et al. It was found that the order of excitation differs in some respects from that found by Lewis and Rothschild in the dog. The earliest points were on the anterior surface of the right ventricle near the atrioventricular border. Their results suggest that the conducting tracts in the right ventricle of man may differ from those of the dog. The curves produced by stimulation of various points on the surface of the human heart were recorded in the three standard leads taken simultaneously. These curves indicate that: (*a*) Ventricular premature contractions of right ventricular origin are represented in the electrocardiogram by ventricular complexes in which the chief initial deflection is upward in lead I. Ventricular premature contractions of left ventricular origin are represented in the electrocardiogram by ventricular complexes in which the chief initial deflection is downward in lead I. (*b*) The clinical electrocardiograms at present ascribed to block in the right branch of the bundle of His indicate block in the left branch, and vice versa. (*c*) In so-called left ventricular preponderance the electrocardiogram is dominated by right ventricular effects and vice versa.

Epinephrine Test in Hypertension.—Under approximately standard conditions, series of subcutaneous injections of 1 cc. of epinephrine were given by Jensen to a number of normal persons, patients with hypertension, and others in whom the reaction was thought to throw light on the phenomena observed in hypertension. Persons with normal cardiovascular systems responded with a slow rise and a subsequent slower decrease of pressure. While the height of the excursion was but slightly accentuated after subsequent injections, the time consumed in reaching the maximum height of the pressure was markedly shortened. The cases of hypertension fell into two groups which were clinically indistinguishable. In the first group no definite change could be ascribed to the first injection of epinephrine, while the other cases of marked hypertension responded with a brisk and intense increase of systolic blood pressure. When the test was repeated, all the patients with hypertension responded with intense rises of pressure. In cases of early or intermittent hypertension the conditions found were like those of the former group of advanced hypertension, but less pronounced. Statistically it was found that the ratio of the difference and of the probable error of difference between the standard deviations from the average readings following the first and the repeated injections of epinephrine was significant in the first group, in those hypertensive patients in whom the response was absent on the first injection. The diastolic pressure decreased after all the injections, but the time required to return to normal was longer in the patient with hypertension than in the normal person. It was not influenced by repetition of the test. The increase in heart rate and the occurrence of cardiac irregularities were not influenced by the state of hypertension or by repetition of the test. The blood pressure reaction of epinephrine in hypertension did not depend on the level of the blood pressure, the size of the heart, presence or absence of kidney disease, or the level of the blood calcium. No satisfactory explanation could be offered for the absence of response in some individuals with hypertension or for the change in response between first and subsequent tests. The clinical epinephrine reaction is not due to peripheral vasoconstriction. In fact, a vasodilatation is present which indicates that the systolic rise is of cardiac origin. The intense increase in the patient with hypertension is thought to be related to the general instability of the hypertensive blood pressure. This instability is briefly discussed and considered mathematically.

Polypoid Fibroma of Left Auricle Causing Ball-Valve Action.—A case of intracardiac tumor arising from the interauricular septum is reported by Houck and Bennett. They have not found any record of this condition ever having been diagnosed before necropsy. A tumor of this type may produce a ball-valve action in every way similar to the action of a ball thrombus.

Aneurysms of Bronchial Arteries.—A case of multiple, saccular aneurysms of the bronchial arteries is reported by Jacobi, the first recorded in the literature. Death resulted from asphyxia caused by tracheal occlusion by the aneurysm. The etiology is shown definitely to be syphilitic, a rather unusual finding in aneurysms of smaller arteries. Many other small and several medium sized arteries showed syphilitic involvement varying from the early lesions of endarteritis of the vasa vasorum and lymphocytic perivascular infiltration of the adventitia to extensive destruction of the elastic lamellae. The rôle of the supporting external structures in the formation of the aneurysms of the intercostal arteries and aorta in this case is indicated.

American Journal of Diseases of Children, Chicago

40: 227-464 (Aug.) 1930

*Encephalography in Cases with Fixed Lesions of Brain. B. Crothers, E. C. Vogt and R. C. Eley, Boston.—p. 227.
Giant Cells in Inflammations of Lung in Children. R. A. Moore and P. Gross, Cleveland.—p. 247.
*Buffer Capacities of Various Milks and Proprietary Infant Foods. G. E. Holm and B. H. Webb, Washington, D. C.—p. 260.
Insensible Perspiration in Infancy and Childhood. S. Z. Levine and E. Marples, New York.—p. 269.
*Nutrition of Children on Mixed and on Vegetable Diet. D. E. Lane and F. H. Bosshardt, Berkeley, Calif.—p. 285.
*Acute Obstructive Laryngitis. W. L. Bradford and A. D. Leahy, Rochester, N. Y.—p. 298.
*Nutrition of Sick Children. M. G. Peterman and I. Hug, Milwaukee.—p. 305.
*Normal Closing Time of Foramen Ovale and Ductus Arteriosus. A. Christie, New York.—p. 323.
*Chondrodysplasia: Unusual Case. W. P. Blount, Milwaukee.—p. 327.
Subcutaneous Rupture of Stomach. S. J. Seeger and I. Schulz, Milwaukee.—p. 334.
Subcutaneous Fat Necrosis. J. Epstein and L. Barash, New York.—p. 337.
Nephrosclerosis (Chronic Interstitial Nephritis) in Childhood. A. G. Mitchell, Cincinnati.—p. 345.
Benjamin Rush, 1745-1813. J. Ruhräh, Baltimore.—p. 389.

Encephalography in Cases Presenting Fixed Lesions of Brain.—Crothers et al. believe that encephalography should be used before final judgment is passed on the future of children severely handicapped by fixed cerebral lesions, unless other less severe methods are demonstrably adequate. Encephalograms, properly taken and intelligently interpreted, give definite information of positive value in at least half of properly selected cases. In the remainder, negative facts of importance can be established.

Buffer Capacities of Various Milks and Proprietary Infant Foods.—An attempt has been made by Holm and Webb to evaluate quantitatively the buffer intensities of various milks and infant foods over the range of hydrogen ion concentration concerned in digestion. They conclude from their results that in the majority of cases of infant feeding the nature of the curds formed is of greater importance than is the buffer capacity.

Nutrition of Children on Mixed and on Vegetable Diet.—From the results of feeding tests made by Lane and Bosshardt there appears no reason to conclude that a scientifically balanced milk diet, including 1½ pints to 1 quart of milk a day per child, produces greater growth or better health in growing children from 7 to 15 years old than a scientifically chosen vegetable diet furnishing a smaller amount of calcium. If there is a greater calcium storage on the milk diet than on the vegetable diet, a supposition which does not appear justified by the gains in height and weight or the other data here presented, there still would seem to be no reason for assuming such excessive storage advantageous for the general health of growing children. Excessive calcium storage may possibly obscure a clear perception of the function of other factors in the diet, whether it is that of the calory-producing nutrients, the various minerals and vitamins or the acid-base equilibrium of the blood. A diet of vegetable foods carefully selected with special reference to the quality and quantity of the protein, low in fat, comparatively high in carbohydrate, with adequate amounts of the various minerals and high in vitamins produced in ten weeks as satisfactory increase in all physical measurements observed in children from 7 to 15 years old, and in most cases greater increases, than a similarly carefully planned milk and meat-containing diet.

Acute Obstructive Laryngitis.—From the bacteriologic study made by Bradford and Leahy of sixty-six cases, it is suggested that green-producing cocci may be of etiologic significance in certain types of acute obstructive laryngitis simulating laryngeal diphtheria.

Nutrition of Sick Children.—Peterman and Hug state that the food requirements of children with chronic bone disease, especially tuberculous disease, are not high but should exceed 50 per cent above the basal requirements calculated on the basis of the "normal" or expected average weight and the height. For patients from 2 to 6 years of age, more than 90 calories per kilogram of body weight should be given; for those from 6 to 12 years, more than 80 calories per kilogram are necessary. These requirements are approximately those for normal, well, active children, but they must be supplied to the sick children in bed. The effects of concentrated foods and further modifications of the diet are being studied. Dental caries did not develop in any child.

Normal Closing Time of Foramen Ovale and Ductus Arteriosus.—An attempt was made by Christie to standardize the knowledge of the normal anatomic closure of the foramen ovale and of the ductus arteriosus by an anatomic and statistical method. This closing time of the foramen ovale was found to occur prior to twelve weeks after birth in 87 per cent of 590 normal hearts of infants from 1 day to 1 year of age. Closure of the ductus arteriosus occurred prior to eight weeks after birth in 88 per cent of 558 normal hearts of infants from 1 day to 1 year of age.

Chondrodysplasia.—The case reported by Blount belongs to one of the rarer forms in which multiple enchondromas are present with no exostoses in the patient or the family.

American J. Roentgenol. & Rad. Therapy, New York

24: 113-224 (Aug.) 1930

Roentgenologic Study of Breast. S. L. Warren, Rochester, N. Y.—p. 113.
Subphrenic Abscess. E. P. McNamee, Cleveland.—p. 125.
Roentgen Appearance of Chest of New-Born Infant. J. T. Farrell, Jr., Philadelphia.—p. 140.
Development of Marble Bones. A. H. Pirie, Montreal, Canada.—p. 147.
Uncoiled Aorta. D. S. Dann, Kansas City, Mo.—p. 154.
Treatment of Angina Pectoris by Paravertebral Short Wave Radiation. M. L. Sussman, Boston.—p. 163.
Therapeutic Lead Poisoning. S. Withers, Denver.—p. 169.
Relative Value of Radium in Treatment of Cancer. M. J. Sittenfield, New York.—p. 180.
Sarcoma of Prostatic Area in Infant Aged Four Months: Case. G. Raap, Miami, Fla.—p. 185.

American Journal of Syphilis, St. Louis

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Acquired Immunity in Syphilis. A. M. Chesney, Baltimore.—p. 289.
Problem of Early Genital Lesions. O. C. Wenger, A. A. Surgeon and H. O. Proske, Hot Springs, Ark.—p. 313.
Trypanocidal and Spirocheticidal Activity of Bayer 205 (Germanin). J. A. Kolmer, Philadelphia.—p. 320.
Malaria Treatment of Paresis. W. Freeman, Washington, D. C.—p. 326.
Effect of Heat Produced by Ultra-High Frequency Oscillator on Experimental Syphilis in Rabbits. C. M. Carpenter and R. A. Boak, Albany, N. Y.—p. 346.
Provocative Wassermann, Kahn and Vernes Flocculation Tests for Syphilis on Identical Specimens of Serum. M. A. Lyons, New York.—p. 366.
Principles Involved in Complement Fixation by Cold and Warm Incubation Procedures. B. S. Levine, Hines, Ill.—p. 378.
Effect of p_H on Third Improved Warthin-Starry Method for Demonstrating Spirochaeta Pallida in Single Sections. R. Farrier and A. S. Warthin, Ann Arbor, Mich.—p. 394.

Archives of Internal Medicine, Chicago

46: 165-360 (Aug.) 1930

- *Value of Acid Neutralization in Treatment of Gastric and Duodenal Ulcers. W. L. Palmer, Chicago.—p. 165.
- *Laboratory Studies in Epilepsy. J. Felsen, New York.—p. 180.
- *Bronchial Asthma: Severe Chronic Intractable Type. I. S. Kahn, San Antonio, Texas.—p. 218.
- *Arterial Hypertension: Evaluation of Prognosis. E. J. Stieglitz, Chicago.—p. 227.
- Plasma Proteins. H. J. Wiener and R. E. Wiener, New York.—p. 236.
- *Postoperative Results in Toxic Goiter. N. E. Clarke and I. Black, Detroit.—p. 266.
- *Postmortem Blood Chemistry in Renal Disease. S. H. Polayes, E. Hershey and M. Lederer, New York.—p. 283.
- Chemistry and Metabolism in Experimental Yellow Fever in Macacus Rhesus Monkeys: I. Concentration of Nonprotein Nitrogenous Constituents in Blood. A. M. Wakeman and C. A. Morrell, New Haven, Conn.—p. 290.
- *Fatal Human Anaphylactic Shock: Case. J. G. M. Bullowa and M. Jacobi, New York.—p. 306.
- *Influence of Special Breakfast on Basal Metabolism of Patients with Pathologic Condition. C. C. Wang and J. E. Hawks, Chicago.—p. 316.
- Intermediate Metabolism of Foreign Sugars. E. H. Fishberg and B. T. Dolin, New York.—p. 321.
- Epigastric Pulsation. N. Fukui, Tokyo, Japan.—p. 333.
- Gastric Sequelae of Corrosive Poisoning. W. S. Boikan and H. A. Singer, Chicago.—p. 342.

Value of Acid Neutralization in Treatment of Gastric and Duodenal Ulcers.—Palmer presents data bearing on the rôle of free gastric acidity in the rate of healing of gastric and duodenal ulcer. In the experiments made by him, two groups of patients were subjected to substantially identical types of treatment except for the fact that in one, the so-called alkali group, an effort was made to neutralize the free acidity throughout the entire digestive period, whereas in the other, the so-called beef-tea group, gastric secretion was purposely stimulated in order to maintain as high a free acidity as possible. Conclusions were drawn regarding the results in each group by observing the rate of desensitization of the pain-producing mechanism. The most significant result in these experiments is that two thirds of the patients in group 2 became free from spontaneous distress during the period of administration of beef tea and acid-insensitive without alkali therapy, indicating thereby desensitization of the pain-producing mechanism. This indicates that some progress has been made by the reparative processes in the ulcer. Stimulation of gastric secretion by means of the hourly feeding of beef tea did not stop them; it did not stop the natural tendency of the ulcer to heal spontaneously. This constitutes further evidence that, regardless of what the etiology of ulcer may be, and regardless of the cause of chronicity, the natural and usually the dominating tendency in any given ulcer is toward healing. The next most significant observation is that neutralization of the gastric free acidity by means of alkalis definitely increased the rate of desensitization of the pain-producing mechanism. There is reason to think that some correlation exists between this and the healing process, that desensitization signifies some progress toward healing. The conclusion seems reasonable, therefore, that neutralization of the gastric free acidity favors healing. This may be due to protection of the ulcer surface from the destructive action of hydrochloric acid, to decreased gastric emptying time, to diminished spasm, or perhaps to other unknown factors. But, regardless of what the explanation may be, healing apparently proceeded at a faster rate in the alkali group.

Laboratory Studies in Epilepsy.—An intensive laboratory study of seventy-three epileptic patients was made by Felsen and the observations were compared with the more limited investigations of other authors. The data reveal significant variations and suggest a more careful study of individual epileptic patients as a clue to the pathogenesis of epilepsy.

Chronic Intractable Type of Bronchial Asthma.—Kahn concludes that there exists a type of asthmatic person in whom, even in the absence of other complications, antibody formation against allergic antigens or the allergen resistance factor, whatever that may be, is apparently greatly reduced or nonexistent, precisely as is the case analogously in tuberculosis and other bacterial infections. In the absence of antigen reproduction, such as occurs in bacterial infections, there is probably combined with this lowered faculty of antibody formation a definite inability to excrete promptly the toxins elaborated by such allergic antigens following their complete withdrawal. Eosinophilia is usually absent in these cases. The usual diagnostic skin tests cause negative reactions, and if pollens are used, are dangerous. In these cases there is gradual, and at times rapid, development of polyantigenic sensitiveness of high degree. A small but appreciable percentage of these patients recover a certain amount of antibody formation and relief and even freedom from symptoms after many weeks or months of persistent elimination of antigenic contact without the institution of other therapeutic measures. While there is no laboratory proof to support these contentions, the clinical results secured offer rather conclusive proof. There exists no known reason why a patient should not fail to develop antibodies to allergic as well as to bacterial antigens.

Evaluation of Prognosis in Arterial Hypertension.—Stieglitz feels that the prognosis in individual instances of arterial hypertension should be based on several variable factors and does not necessarily coincide with the statistical average prognosis for groups of hypertensive persons. The factor of age is not of great moment. The factor of the etiologic background accounting for the hypertension is significant. Likewise are the status of the cardiac and of the renal reserve of importance. Most significant of all is the stage at which the vascular disease is encountered; whether the hypertension is of purely spastic origin or whether slight, moderate or extensive fibrotic changes have already taken place in the vessel walls. Spasticity and hypertonicity, no matter how severe, are amenable to therapy. Fibrotic scarring and replacement of degenerated muscle cells are not amenable to therapy but represent permanent injury. The degree of relaxability can be determined easily and rapidly by noting the response of the arterial tension to the inhalation of amyl nitrite. The type of response encountered has proved of great assistance in properly evaluating the individual prognosis. In fifty instances, only one incorrect preliminary prognostic opinion was given. Relaxability of the arterioles is evidence of vascular disease relatively early in its pathogenic development, whereas the rigid fibrosed arteries of arteriolar sclerosis respond little or not at all. This procedure makes it easier to answer the patient's justified request for specific information relative to his outlook.

Postoperative Results in Toxic Goiter.—Clarke and Black have studied 181 cases of thyroidectomy according to the age of the patient, distribution and duration and incidence of symptoms. It was determined that 70 per cent of the patients lost weight while 30 per cent showed no change or even gained weight. The most common pathologic process in the thyroid was colloid adenoma, hyperplasia being much less frequent. The mortality rate was 6 per cent. The pulse rate at admission, minimum before and maximum after operation with the rate at discharge were ascertained. These showed a definite division into groups according to the mean and extreme rates, the ratios conforming closely to those observed for the weight changes. Seventy-six cases were studied after an average elapsed time from operation of two and one-half years. Only 58 per cent of the patients had gained weight; the pulse rate was below normal in a group approximating the same number who had not gained weight since operation. The blood pressure showed an unusually high number who had developed abnormally high blood pressures since operation. They found 16 per cent well, 40 per cent moderately improved, 34 per cent slightly improved and 10 per cent showing definite recurrences. Hence they consider surgical intervention unsatisfactory in a large group of these patients but consider that its benefits could be improved by more accurate preoperative selection, the weight being an accurate preoperative guide. Surgical intervention is only substitutional therapy, substituting the dominant myxedema for the less dominant state of hyperthyroidism and not in any way altering the real constitutional condition but only alleviating it. A perfect surgical result depends on the chance development of equilibrium between the hyperthyroidism and the developed myxedema. The disease hyperthyroidism is primarily a problem of the internist, and its ultimate real cure will come through real control of the constitutional condition and not by surgically interrupting one link or substituting another less disturbing symptomatic or neutralizing disease.

Postmortem Blood Chemistry in Renal Disease.—From a postmortem study of the creatinine and urea content of the blood specimens in 100 cases, Polayes et al. conclude that blood creatinine determinations are often helpful as an aid in determining the status of the renal function during life. The urea values are not as helpful as the creatinine figures. A creatinine content of 4 mg. or more per hundred cubic centimeters of blood obtained post mortem indicates marked creatinine retention during life and therefore severe renal insufficiency.

Fatal Human Anaphylactic Shock.—A case of fatal anaphylactic shock after a single injection of diphtheria antitoxin is reported by Bullowa and Jacobi. The pathologic anatomy consisted chiefly of acute pulmonary emphysema, dilatation of the right side of the heart, general venous stasis and visceral congestion; the left side of the heart is contracted and empty. Microscopically, the changes consisted chiefly of thickening of the arteriolar wall, especially in the lungs. These anatomic changes are presented as corroborative morphologic evidence to substantiate the experimental work on the pathogenesis of fatal anaphylactic shock reviewed. This consisted chiefly in overfilling of the lungs, which remained distended, a drop in the peripheral blood pressure with a concomitant rise in the pulmonary arterial pressure, a progressive weakening of cardiac contraction and a slowing and final stopping of the heart, with the right auricle and ventricle in diastole and very much dilated. The cases of anaphylactic shock that came to necropsy are reviewed in detail. Doubt is cast on the rôle of the thymus in such cases.

Influence of Special Breakfast on Basal Metabolism of Patients.—Two series of experiments were conducted by Wang and Hawks on three normal persons and on twenty-three subjects with a pathologic condition, including twelve patients with thyrotoxicosis. The basal metabolism varied from + 74.6 to — 14.6 per cent from the Harris-Benedict standard. In the control series two tests were made one hour apart, while in the second a special breakfast recommended by Benedict was given after the first test, followed by another test an hour later. The average difference of the two tests in the control series was 0.08 per cent, while that of the second series was 0.53. On the basis of their experimental data, they conclude that the special breakfast may be used with advantage to patients who are extremely nervous and who have late appointments for their basal metabolic test.

Colorado Medicine, Denver

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Intracranial Injury of New-Born. E. S. Watson, Lusk, Wyo.—p. 323.
Diagnosis and Management of Contracted Pelvis. M. Weiner, Denver. —p. 330.
Major Indications for Cystoscopy. H. T. Low, Pueblo.—p. 334.
Cotton Mather and Smallpox. W. S. Dennis, Denver.—p. 337.
History and Prospect of Denver Sanatorium Association. A. Mining, Denver.—p. 339.
Pachymeningitis Hemorrhagica Interna. J. R. Jaeger, Denver.—p. 343.
Phlegmonous Funiculitis. F. E. Rogers, Denver.—p. 346.

Georgia Medical Association Journal, Atlanta

19: 315-362 (Aug.) 1930

Anatomy Before Vesalius. J. C. Weaver, Atlanta.—p. 315.
Andreas Vesalius: 1514-1564: Sketch of His Life. M. Wattles, Atlanta. —p. 318.
Published Works of Vesalius. M. M. Tye, Atlanta.—p. 321.
Influence of Vesalius. S. R. Roberts, Atlanta.—p. 324.
The Medical Library. W. Kiser, Atlanta.—p. 330.
Mutual Problems in Care of Our Sick. J. Van De Vrede, Atlanta.—p. 332.
Weather Thermometer in Bladder: Case. E. Floyd and J. L. Pittman, Atlanta.—p. 349.
Value of Organization. E. C. Thrash, Atlanta.—p. 349.

Journal of Nervous & Mental Disease, New York

72: 241-368 (Sept.) 1930

Problem of Anatomy of Schizophrenia. W. Spielmeyer, München.—p. 241.
Brown-Séquard Paralysis: Two Cases (Poliomyelitis and Cord Syphilis). G. B. Hassin, F. J. Kendrick and E. J. Connelly, Chicago.—p. 245.
What Can Public Welfare Accomplish for State Institutions? F. J. Farnell, Providence, R. I.—p. 251.
Postencephalitic Parkinsonism with Psychosis. B. J. Alpers, Philadelphia. —p. 257.
*Affectepilepsy and Hystero Epilepsy. J. Notkin, New York.—p. 266.

Affectepilepsy and Hystero-Epilepsy.—The thirteen cases cited by Notkin include three so-called hystero-epilepsies, two alcohol epilepsies, three poriomanic affectepilepsies and five other cases of psychopaths with so-called affectepilepsy. On the basis of this material, an attempt is made to show the possibility of an hysterical manifestation transforming itself into a more severe organic reaction of an epileptic nature. Considerable doubt is expressed as to the ultimate deterioration in all cases of the idiopathic variety of epilepsy. Bratz's theory of the nonoccurrence of petit mal attacks in affectepilepsy is dispelled by a critical consideration of his material and citation of his own cases. The mechanism of the attacks in affectepilepsy is explained by the process of spontaneous hyperpnea frequently seen in psychopaths during affective states. Attempt is also made to explain the phenomenon of functional aphonia by the same mechanism. Vasomotor disturbances during emotional states are also offered as a mechanism for the attacks, and the possibility of overflow of senso-affective stimuli from the thalamus is suggested. Alcohol is the expression of psychopathy or may be an incidental manifestation in patients with affectepilepsy. Alcohol itself may produce convulsions as a toxic agent or by causing biochemical alterations. The suggestion to omit all the various classifications is made and to consider one cryptogenic group of convulsive states with a multiplicity and variety of etiologic factors in addition to the "something" which gives rise to the convulsive attacks.

Kansas Medical Society Journal, Topeka

31: 273-310 (Aug.) 1930

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Maine Medical Journal, Portland

21: 133-152 (Aug.) 1930

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Viewpoints on Industrial Surgery. O. F. De Veaux, Bingham.—p. 138.
Syphilis and Society. E. W. Gehring, Portland.—p. 142.

Michigan State M. Soc. Journal, Grand Rapids

29: 627-690 (Sept.) 1930

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Birth Injuries from Standpoint of Obstetrician. L. E. Daniels, Detroit. —p. 631.
Birth Injuries from Standpoint of Pediatrician. J. C. Montgomery, Detroit.—p. 634.
Birth Injuries from Standpoint of Ophthalmologist. P. Heath, Detroit. —p. 638.
Complete Anuria Following Pregnancy Relieved by Decapsulation of Solitary Kidney: Case. H. E. Randall, Flint.—p. 639.
Fractures from Standpoint of Industrial Physicians. C. D. Selby, Toledo, Ohio.—p. 641.
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Military Surgeon, Washington, D. C.

67: 277-418 (Sept.) 1930

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Northwest Medicine, Seattle

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Cerebrospinal Meningitis: Treatment by Cisternal Puncture. A. L. Balle, Seattle.—p. 371.
Poliomyelitis: Is 1930 Bringing It to the Pacific Northwest? S. M. Creswell, T. J. Porro, C. E. Wallace, Tacoma, Wash.—p. 374.
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Acute Response of Guinea Pigs to Vapors of Some New Commercial Organic Compounds: V. Vinyl Chloride. F. A. Patty, W. P. Yant and C. P. Waite.—p. 1963.

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Healing in Bone Tuberculosis. M. B. Hanson and I. Fenger, Minneapolis.—p. 374.
Roentgenologic Studies on Physiologic Motor Phenomena. H. A. Jarre, Detroit.—p. 377.
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Rhode Island Medical Journal, Providence

13: 113-126 (Aug.) 1930

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Proper Care of Food. M. Woodward, Lexington.—p. 201.
René Theophile Hyacinthe Laënnec. C. W. Evatt, Greenville.—p. 203.
Cyanosis in Infants. W. Weston, Jr., Columbia.—p. 206.
Noninfectious Factors in Etiology of Sinus Diseases. R. A. Fenton, Portland, Ore.—p. 210.

Southern Medical Journal, Birmingham, Ala.

23: *777-868* (Sept.) 1930

Granulomatous and Ulcerative Lesions of Female Genitalia. J. C. Burch, Nashville, Tenn.—p. 777.
Repair of Old Lacerations at Time of Delivery. W. T. Pride, Memphis, Tenn.—p. 781.
Chronic Ulcerative Colitis: Etiology. R. R. Kracke, Emory University, Ga.—p. 785.
Punch Operation: Presentation of New Method of Fixation of Vesical Orifice. D. M. Davis, Baltimore.—p. 789.
Diverticulum of Ureter. W. L. Grantham, Asheville, N. C.—p. 792.
Surgical Suggestion for Glaucoma. M. E. Brown, New Orleans.—p. 797.
*Tuberculosis and Uncinariasis: Sixty-Eight Cases. C. D. Colby and K. Schaffle, Asheville, N. C.—p. 801.
*Regional Anesthesia in Treatment of Fractures and Dislocations. J. D. Highsmith, Fayetteville, N. C.—p. 807.
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*Synovial Fluid in Infectious and Neuropathic Arthritis. A. R. Shands, Jr., Durham, N. C.—p. 818.
*Empyema in Children: Thirty-Six Cases Treated by Tidal Irrigation and Suction. D. Hart, Durham, N. C.—p. 823.
*Bath Pruritus: Cause and Cure. T. Gaines, Mobile, Ala.—p. 829.
Diagnosis and Treatment of Gastro-Intestinal Diseases. J. C. Johnson, Atlanta, Ga.—p. 833.
*Etiologic Types of Heart Disease in Professional Men with Special Reference to Physicians. E. F. Horine and M. M. Weiss, Louisville, Ky.—p. 838.
*Malnutrition. J. C. Eby, Plaquemine, La.—p. 842.
Lingua Nigra: Case. R. S. Spray, Morgantown, W. Va.—p. 844.
*Treatment of Stricture of Urethra with Bipolar Current. G. R. Livermore, Memphis, Tenn.—p. 849.
Hysteria with Extensive Urticaria and Paroxysms of Choking as Major Symptoms: Case. L. A. Golden, Birmingham, Ala.—p. 850.
*Simplified Method of Blood Chemistry Analysis. J. Matthieu, Miami, Fla.—p. 851.
Two Additional Years in College Versus Two More Years in Hospital. W. C. Davison, Durham, N. C.—p. 851.
Significance of Symptoms in Medical Teaching. R. H. Oppenheimer, Atanta, Ga.—p. 855.

Tuberculosis and Uncinariasis.—Sixty-eight cases are presented by Colby and Schaffle, in forty-three of which both hookworm disease and tuberculosis were present, while there were twenty-five cases of uncinariasis which had been referred with a diagnosis of tuberculosis.

Regional Anesthesia in Treatment of Fractures and Dislocations.—Nerve block anesthesia is preferred by Highsmith over general narcosis and local infiltration anesthesia in the treatment of fractures and dislocations. Thirty-five cases are reported.

Synovial Fluid in Infections and Neuropathic Arthritis.—A report of the bacteriology and cytology of the synovial fluid in 125 cases of arthritis is given by Shands. There were 105 patients with chronic infectious arthritis. Streptococci were recovered from the synovial fluid in 26.7 per cent of this number. The total percentage of positive joint cultures was 38.1. Of the twenty-eight positive cultures of streptococci, twenty-three were of the viridans type. The average white cell count and the average percentage of polymorphonuclears was distinctly higher in the group in which positive cultures were obtained. Studies were made on the synovial fluid of four acute gonorrheal joints, four joints with acute synovitis, and two infectious joints of miscellaneous grouping. There were ten patients with neuropathic arthropathies, nine of whom had definite Charcot joints. Bacteria were recovered from the synovial fluid of four of this number. Two of the three positive Charcot joint cultures were *Streptococcus viridans.* The cytologic studies in this group were very similar to those of the chronic infectious arthritic joints with negative cultures.

Empyema in Children Treated by Tidal Irrigation and Suction.—Thirty-six children (fifteen years or less of age) have been treated by Hart by tidal irrigation, with five deaths. All of the fatal cases were in a serious condition at the time of operation, while four of the five were apparently hopeless. Each of the four patients who died in the hospital had a bilateral empyema. The larger number of patients were in the younger age groups (72 per cent 5 years of age or less) where the mortality is usually high. Fifteen of these patients were 2 years of age or younger, with one death in the hospital, giving a hospital mortality of 7 per cent. No patient in this age group came to necropsy with an empyema that had not been diagnosed and drained. In the same age group during the preceding twelve years there was a 40 per cent mortality among operative cases; 25 per cent came to necropsy undiagnosed and 10 per cent of the patients died without operation, after a diagnosis had been made by thoracentesis. The organisms were diverse, the pneumococcus type I and the influenza bacillus apparently causing the most serious infections. The complications not referable to the method of treatment have been numerous, diverse, and often multiple. The complications referable to the method of treatment have been almost negligible. One patient developed a superficial abscess, secondary to an osteomyelitis of the rib, seven months after discharge from the hospital. No other patient has shown any trouble or symptoms referable to the empyema. No patient has been discharged from the hospital with a draining sinus. The duration of the drainage has been greatly reduced. No patient has developed a chronic empyema.

Cause and Cure of Bath Pruritus.—Gaines explains the neurogenic mechanism of this condition and relates his treatment, which consists of measures aimed at restoring the activity of the sweat glands—having the patient submerge in very hot water; remain until perspiration is well established; emerge and dry quickly in a warm room free of draft; avoid friction with towel and don his clothes while his skin is still moist. As the patient continues to escape his dreaded paroxysms, not only is the emotional factor eliminated but the irritability of his skin from repeated rubbing is allayed.

Etiologic Types of Heart Disease in Professional Men.—A selected group of 163 professional individuals was studied by Horine and Weiss. There were 99 physicians, 26 clergymen, 20 attorneys and 18 dentists. They found that the etiologic types of heart disease as encountered in the learned professions do not differ from the types found in the lay population. Clinical evidence is presented to show that a diagnosis of hypertensive heart disease may be made even in the presence of a normal or subnormal blood pressure. The presence of peripheral arteriosclerosis of itself does not justify the diagnosis of arteriosclerotic heart disease. The coronary basis of angina pectoris is stressed. Patients with certain functional heart disturbances resulting from a lowered basal metabolic state should be placed in the hypothyroid heart group. The average physician with heart disease is a cooperative patient.

Malnutrition.—Eby noted marked improvement in undernourished and underweight children following a three months period during which each child in the nutritional clinic in the various schools was given two glasses of milk and two bananas in addition to his regular lunch during the school day.

Treatment of Stricture of Urethra with Bipolar Current.—Livermore uses the bipolar current in all urethral strictures which do not promptly respond to dilation. The electrode is applied to the stricture through the urethroscope, the bipolar current turned on and the strictured band or bands thoroughly fulgurated. It has been his practice to fulgurate at one point, endeavoring to apply the electrode entirely across the strictured tissue. In a week or ten days, sounds are passed.

Simplified Method of Blood Chemistry Analysis.—The procedure employed by Matthieu is as follows: One part of oxalated blood is added to nine parts of the reagent. It can be filtered immediately. The filtrate can be used exactly in the same way as the one obtained by Folin's method. The reagent has the following composition: Ten Gm. of sodium tungstate is dissolved in 1,000 cc. of fifteenth normal sulphuric acid. The solution is stable for at least three months. Sometimes a slight precipitate occurs after a few days, but this does not interfere with the method. In this case the reagent should be shaken before being used. It is recommended to cover the surface with some toluene.

United States Vet. Bur. M. Bull., Washington, D. C.

6: 733-836 (Sept.) 1930

*Group Psychic Treatment of Dementia Praecox by Lectures in Mental Reeducation. E. W. Lazell.—p. 733.
Faulty Union of Fractures. J. Shearer.—p. 748.
*Tuberculous Cavitation. A. Blumberg.—p. 753.
*Malarial Treatment of Paresis. M. B. Holmes.—p. 761.
Treatment of Neurosyphilis. I. Kimbell.—p. 766.
Phases of Roentgen Diagnosis of Pulmonary Tuberculosis. J. J. Peters.—p. 772.
Value of Roentgen Ray in Diagnosis, Treatment and Prognosis of Pulmonary Tuberculosis. E. A. Montague.—p. 777.
Artificial Pneumothorax in Pulmonary Tuberculosis. L. D. Riggs.—p. 780.
Treatment of Chronic Arthritis. N. C. Trauba.—p. 784.
Emotions. H. G. Clarke.—p. 787.
Angina Pectoris. L. J. Godbey.—p. 790.
Ringworm or Tinea Infection of Toes. C. G. Beckett.—p. 793.
Rectal Fistula: Operative Care of Cases. J. B. Warden.—p. 799.
Successive Bilateral Spontaneous Pneumothorax of Indeterminable Origin. E. B. Miller.—p. 802.
Transposition of Thoracic and Abdominal Viscera. F. B. Nather.—p. 805.
Gastric Carcinoma Simulating Typhoid Fever. C. W. Rhea.—p. 806.
Suppurative Phlebitis of Femoral Vein. R. E. Baker.—p. 809.
Facial Paralysis Cured by Dental Treatment. L. W. Whitaker.—p. 811.

Psychic Treatment of Dementia Praecox by Lectures.—Lazell is convinced that major neuropsychiatric conditions, such as hyperthyroidism, epileptiform convulsions, dementia praecox of the hebephrenic form, anxiety neuroses and the manic-depressive groups not only are curable by the lecture method but also are curable when the lectures are given to groups of patients. The best results have been obtained in those patients who have been hospitalized over a considerable period of time, who are under control and who have attended at least two series of lectures. The treatment should extend over at least six months, with a close following up during the first few months after return to civil life. The group method is the only practical and successful method of approach in the treatment of neuropsychiatric cases in which large numbers of patients are involved. The group-lecture method is of the highest importance in solving the greater problems of the public mental health. It should be extended to reform and industrial schools, to state hospitals for the mentally disordered, and to penitentiaries. Psychopathic clinics should be opened in all large centers of population to assist the great numbers of borderline cases before they have broken completely and become psychotic.

Tuberculous Cavitation.—In a series of forty-three patients dying of pulmonary tuberculosis and coming to necropsy, Blumberg says 92 per cent showed cavities. Cavitation was bilateral in 63.2 per cent, and unilateral in 36.8 per cent. Involvement of both upper lobes and the left lower lobe existed in 68 per cent. Intestinal tuberculosis was a complication in 81.87 per cent, laryngeal tuberculosis was found in 15.8 per cent, and spontaneous pneumothorax was present in 6.4 per cent. Healed and healing lesions were found in patients who died with advanced pulmonary tuberculosis. Roentgenologic evidence over three and one-half years demonstrated that pulmonary cavities may disappear and show no recurrence. This is the case when the prevailing type of reaction to the disease is overwhelmingly fibrous. From this it can be assumed that these cavities had healed, in view of the fact that healing was evidenced in cases at necropsies. Deposits resembling epithelium were found to line some cavities. Some cavities remain stationary without manifestating clinical activity.

Malarial Treatment of Dementia Paralytica.—Holmes has given eighty-one inoculations to fifty-eight patients. Two patients also contracted malaria. Intravenous inoculation was practiced when possible, the intramuscular route being second choice. The amount of blood used varied from 1 cc. to as much as 25 cc. in one case, the usual amount being from 5 to 6 cc. It was not found necessary to take the blood from the donor during a paroxysm; blood taken at any time was effective. The patients were not selected, except that only those who were in fair to good physical condition were treated. Tertian malaria was used as far as possible; however, this report includes a number of patients who had estivo-autumnal malaria. All of these patients had had some and most of them a great deal of antisyphilitic treatment before their inoculation with malaria. From a clinical standpoint 21 patients showed no improvement or continued to deteriorate; 1 patient died; 21 showed slight improvement, 12 showed moderate improvement, and 3 showed marked improvement. Serologically, blood Wassermann tests were not affected. The spinal fluid globulin showed no change. The spinal cell count was unaltered in 36 cases, there was a slight reduction in 5, a moderate reduction in 3, marked reduction in 2, a slight increase in 1, and a moderate increase in 1 patient. The spinal fluid Wassermann test showed no change in 26 cases, slight modification in 17, moderate improvement in 3, and marked improvement in 1; it was slightly more positive in 1 patient. The colloidal gold curve showed no change in 18 cases, slight improvement in 19, moderate improvement in 7, and in 2 patients showed a slight change for the worse. It was the experience that the most favorable results could be expected in the manic types and in those patients who were given early treatment. Not much can be expected in old markedly deteriorated cases. Any improvement made was noted within a period of two or three months, and usually within a few weeks.

West Virginia Medical Journal, Charleston

26: 449-512 (Aug.) 1930.

Aspects of Gastric Surgery. R. J. Wilkinson, Huntington.—p. 449.
Removal of Tonsils by High-Frequency Currents. M. F. C. Zubak, Wheeling.—p. 454.
Acute Craniocerebral Injuries: Diagnosis and Treatment. J. G. Lyerly, Richmond.—p. 460.
Irritable Colon. R. J. Condry, Elkins.—p. 464.
Consideration of Nephrosis. M. I. Mendeloff, Charleston.—p. 469.
Celiac Disease. G. C. Hodges, Kilsythe.—p. 471.
Why Nursing Standards. M. M. Maloney, Fairmont.—p. 473.
Thinking Nucleus on Crippled Children. A. T. Post, Clarksburg.—p. 474.
Indolent Ulcer with Peculiar Bacteriologic Findings: Case. B. C. John and R. S. Spray, Morgantown.—p. 476.
Tetanus: Case. G. T. Conley, Williamson.—p. 477.
Hodgkin's Disease. F. S. Harkleroad, Harvey.—p. 478.
Congenital Absence of Anus: Spontaneous Formation of Outlet in Scrotum. H. M. Hall, Wheeling.—p. 479.
Raynaud's Disease. M. Barber, Charleston.—p. 481.
Jamaica Ginger Paralysis. C. J. Burns, Columbus, Ohio.—p. 481.

Wisconsin Medical Journal, Madison

29: 419-488 (Aug.) 1930

Nephritis. R. H. Major, Kansas City, Kan.—p. 419.
Id. H. R. Wahl, Kansas City, Kan.—p. 424.
Intracranial Tumors of Childhood. L. Davis, Chicago.—p. 429.
Mental Depression. J. C. Hassall, Oconomowoc.—p. 433.
Aids to Diagnosis of Tuberculous Meningitis. W. S. Middleton, Madison.—p. 438.
Principles of Roentgen Therapy: VIII. Roentgen Therapy in Gynecology. E. A. Pohle, Madison.—p. 442.
Diagnostic Problem. L. M. Warfield, Milwaukee.—p. 446.
Gastric Ulcer Simulating Gallstone: Case. P. F. Greene and E. A. Schmidt, Madison.—p. 447.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Diseases in Childhood, London

5: 237-294 (Aug.) 1930

*Asthmatic Child. G. W. Bray.—p. 237.
*Pulmonary Lesions in Rheumatism. L. Findlay.—p. 259.
Infantile Type of Gaucher's Disease. A. Moncrieff.—p. 265.
*Infection Due to Salmonella Type Dublin: Three Sporadic Cases. H. R. Souper, J. Smith and J. A. Stephen.—p. 271.
*Hemoglobinuria in New Born. J. Smith.—p. 275.
*Results of Decapsulation in Nephritis. G. Campbell.—p. 283.

Asthmatic Child.—By way of prophylaxis, Bray urges that intermarriage between allergies should be discouraged. Children of allergic parents should be watched from birth. Bronchitic attacks in eczema or prurigo children should be regarded as potential asthma; coughs should be quickly investigated as well as sneezing, wet noses, or coryza on the slightest provocation. Furniture and bedding for these children should be of the simplest kind. As inhalant sensitization is acquired, kapok should substitute feathers or hair as bedding; furs and pets should be restricted. At the onset of any symptoms that may be of an allergic nature, thorough examination and testing both of the skin reactions and of the gastric contents should be advised. Septic foci, as teeth, adenoids and tonsils, should be remedied, and early breathing exercises and proper convalescence arranged after the infective diseases of childhood.

Pulmonary Lesions in Rheumatism.—In twenty-five cases of the rheumatic infection reviewed by Findlay there was a pulmonary complication and definite evidence of a rheumatic carditis. In sixteen of the cases the cardiac lesion was pericarditis with effusion. In nine of these sixteen cases the condition was one of effusion into the pleural sac. In eight of the cases there was endocarditis. In three of these cases of rheumatic endocarditis there was a left-sided pleural effusion. In the whole series of cases the pleural effusion has in the majority of cases been situated on the left side. The pleural effusion occurs most frequently at the left base and should always be suspected when the percussion note is impaired at the left base, even if the respiratory murmur is intensely tubular in character and râles are present. Pulmonary lesions in rheumatism are of the nature of (*a*) an intercurrent disease (lobar pneumonia) or (*b*) a terminal hypostatic or bronchopneumonia complicating cardiac disease.

Infection Due to Salmonella Type Dublin.—The three cases cited by Souper et al. make a total of five cases encountered in Aberdeen since 1925. The first recognized case occurred in a man, aged 38, the second in a girl, aged 2 years, and of the three cases now recorded, two occurred in infants, and one in a boy aged 5 years. All must have had a septicemia, since in three cases the organism was isolated from the blood, in one case in which the blood cultures were inadequate the organism was isolated from the urine, and in the fifth case from the cerebrospinal fluid, which, presumably, became infected secondarily from the blood. Two out of the five patients died. In four of the cases the home conditions were investigated, but no other case of illness had occurred in any other member of the various families. Further, the fifth case actually occurred in a hospital ward in which there were eighteen other infants. Here a complete investigation was made of the feces and urine of five members of the nursing staff and of all other patients in the ward, but the results were entirely negative. If milk had been the vehicle of infection in the fifth case, then only one case occurred out of a total hospital population of some 350 children and adults.

Hemoglobinuria in New-Born.—Infective hemoglobinuria of the new-born is suggested by Smith as a suitable designation for this disease. Experimental work on the excretion of hemoglobin in rabbits and the deposition of hemosiderin in the cells of the convoluted tubules is confirmed. The pathology of renal obstruction in this and other forms of hemoglobinuria is surveyed and suggestions for treatment made.

Results of Decapsulation in Nephritis.—An analysis is made by Campbell of twenty-three cases of subacute nephritis in children in whom decapsulation of the kidneys had been performed because of failure to respond to medical measures. Of these twenty-three patients, twelve have either completely or in great part recovered. Examination of the records failed to reveal any common factor that might be of assistance in the recognition of a case suitable for operation. From data recorded it cannot be concluded that the ultimate result in a case of subacute nephritis is influenced by the operation of decapsulation. Certain cases do show definite improvement after operation, this improvement being reflected principally in disappearance of edema. There is no evidence that improvement in kidney function follows as a result of the operation.

British Medical Journal, London

2: 237-272 (Aug. 16) 1930

*Massive Collapse of Lung (Active Lobar Collapse). J. M. W. Morison.—p. 237.
*Case of Lipoid Nephrosis: I. Clinical and Biochemical. H. Moore and W. R. O'Farrell.—p. 242.
*Id.: II. Pathologic. R. A. Q. O'Meara.—p. 243.
*Insoluble Precipitates in Diphtheria and Tetanus Immunization. A. T. Glenny.—p. 244.
*Tetany After Exercise: Clinical and Chemical Study of Case. R. D. Lawrence and R. A. McCance.—p. 245.
*Famine Edema. W. R. Aykroyd.—p. 247.
Blood Changes Following Injection of "Sanocrysin" in Pulmonary Tuberculosis. T. A. Hughes and D. L. Shrivastava.—p. 248.
Henoch's Purpura Requiring Surgical Intervention. F. W. Widgery.—p. 249.
Epithelioma of Lip Developing on Site of Recurrent Herpes Simplex. N. Burgess.—p. 249.

Massive Collapse of Lung (Active Lobar Collapse).—Eight cases are cited by Morison. He is certain that, in the examination of the chest, the more one keeps in mind the possibility of active lobar collapse the oftener it will be found, more especially in children and young adults. Active lobar collapse must be clearly differentiated from massive collapse of the lung of a passive character. The function of the musculature of the bronchial tubes may be deranged by various causes acting on the sympathetic and vagal innervation either directly or reflexly. The weight of evidence is in favor of the theory that spasm of the bronchial musculature is the essential feature of active lobar collapse, but the disturbance of the sympathetic innervation must also be taken into account.

Lipoid Nephrosis.—Moore et al. are of the opinion that lipoid nephrosis is in reality a chronic mild glomerulitis. Two bacterial toxins are definitely known to select the glomerulus of the kidney for attack. They are the toxins of the diphtheria bacillus and of the hemolytic streptococcus. The cause of lipoid nephrosis is unknown, but there is justification for suspecting a bacterial origin. One organism, the pneumococcus, suggests itself for study. Many of these patients die of pneumococcal peritonitis.

Insoluble Precipitates in Diphtheria and Tetanus Immunization.—Glenny's experiments show that the immunity produced by the precipitate formed by the addition of alum to tetanus and diphtheria toxoids is greater than that produced by toxoid alone. The increase in certain experimental conditions has reached even a thousand fold.

Tetany After Exercise.—A case of tetany after exercise has been investigated by Lawrence and McCance and found to be due not to the exercise per se but to an alkalemia caused by prolonged (presumably functional) overbreathing after the exercise was completed.

Famine Edema.—The case recorded by Aykroyd was observed at St. Anthony Hospital, North Newfoundland. For a variety of reasons, the poorest Newfoundland families in late spring and early summer may be reduced to a diet made up almost entirely of white flour bread, with scanty additions in the form of molasses, salt meat and salt fish, and little else. At times the additions may run out and the family be reduced to bread and molasses. Such a regimen usually produces beriberi, a common disease in Newfoundland. Newfoundland beriberi is identical with the tropical rice eater's disease, and both wet and dry forms may be observed, the latter being by far the commoner. This patient developed an obscure dropsical condition which followed a long period on an extremely faulty diet. It is peculiar that a patient who had practically lived on dry bread for six months or longer should develop this condition rather than one of the better known deficiency diseases.

Journal of State Medicine, London

38: 435-496 (Aug.) 1930

Reduction of Preventable Disease. H. R. Kenwood.—p. 444.
Some Problems (Old and New) of Seafaring Doctor. H. C. Whiteside.—p. 449.
*Health of Worker of Today. T. Oliver.—p. 454.
Voluntary Worker in Relation to Public Health Service. Lady Keyes.—p. 464.
*Sun Treatment in England. H. Gauvain.—p. 468.
Irradiation of Milk. J. O. Hickman.—p. 476.
Maternity and Child Welfare Service in East London Borough. C. Bennett.—p. 480.

Health of Worker of Today.—Oliver contends that the health of the workers of today is better than it was half a century ago; the conditions under which labor is carried on have improved, the hours of work have been shortened so that the working man has more rest and leisure than previously, and but for the industrial depression matters would have been still better than they are. The one circumstance that stands out prominently and calls for special comment is the lengthened duration of sickness and the greater length of time taken to recover from wounds and fractures than formerly, notwithstanding improved methods of medical and surgical treatment and despite the fact that there has been no corresponding increase in the number of claimants. As the types of illness from which the working classes suffer have not changed and there has been no recognizable impairment of their vital resistance and power of recovery, it is clear that, apart from the aged members, it is not the duration of the illness per se which is the demeaning agent but the period given to convalescence being unduly protracted.

Sun Treatment in England. — Gauvain believes that the August holiday which is enjoyed by the bulk of the population, and which is so often spent at the seaside under conditions different to those of the remainder of the year, is of great help to restore minds and bodies jaded and in need of stimulation and change. Additional exposure to sunlight means an additional tonic and, like all tonics, must be wisely employed and not abused. Not only does it have a beneficial effect on the general physique and on the general power of resistance to disease, but it has an equally beneficial effect on the mind. The sun bather who is benefiting from insolation is always cheerful and happy. None are brighter in their spirits than those who are sun worshippers in the most literal sense, and not only are they more vigorous, more alert, gayer in spirits, but there is a stimulating effect on the mentality of patients receiving insolation. The effect of sun treatment on the nude recumbent patients at Alton and Hayling island was to raise their mental activity on an average of 10 per cent above that of the ordinary child in the physically defective schools who was not able to enjoy insolation. If all the school children had the benefit of at least one or two months insolation annually there is no doubt that it would have a profound beneficial effect on their education generally and the improvement of both their bodies and their minds. Sun treatment, then, is of the nature of a shock treatment, comparable in some ways to protein shock.

Lancet, London

2: 333-382 (Aug. 16) 1930

Syphilis of Heart and Great Vessels. C. F. Coombs.—p. 333.
*Bicolored Guaiac Test for Cerebrospinal Fluid. J. G. Greenfield and R. O. Stern.—p. 339.
*Etiology of Cholecystitis: Bacteriologic Observations. B. Williams and D. G. S. McLachlan.—p. 342.
*Pyrogenetic Action of Sulphur in Olive Oil. W. H. Shilvock.—p. 347.
Sulfosin Therapy in General Paralysis of Insane. W. G. Patterson and S. R. L. Switzer.—p. 348.
Pituitary Cachexia: Case. J. W. Stocks.—p. 349.
*Expulsion of Ectopic Fetus Papyraceus After Uterine Curettage. K. McFadyean.—p. 350.
*Unusual Route of Infection in Cholecystitis. R. Rutherford.—p. 351.

Bicolored Guaiac Test for Cerebrospinal Fluid.—The cerebrospinal fluids of 140 patients with diseases of the nervous system have been examined by Greenfield and Stern by the bicolored guaiac reaction. A Lange colloidal gold test has also been done on each of the fluids for comparison with the new reaction. Their results justify the statement that the bicolored guaiac test is of the same practical value as the Lange test in the laboratory diagnosis of neurosyphilis. The bicolored guaiac test runs parallel with the Lange reaction in that certain cases of disseminated sclerosis give positive results. It differs from the Lange reaction in that negative reactions may be obtained in spite of great protein increase. The ease and certainty with which a good bicolored guaiac suspension can be prepared from stock solutions gives the test a definite advantage over the Lange reaction, since good colloidal gold solutions may be difficult to prepare and there is no satisfactory method of testing them except by their reaction to known specimens of cerebrospinal fluid. The Lange reaction is therefore suited only to laboratories in which a large number of specimens of cerebrospinal fluid are examined. The disadvantages of the test are that a comparatively large quantity, 1 cc., of cerebrospinal fluid is required for the test, and that it is not possible to judge what the final reaction will be under twelve hours, whereas with the Lange reaction a fair estimate may be made after half an hour. For these reasons the authors suggest that this test should replace the Lange test in the routine examination of the cerebrospinal fluid. But when difficulty arises in the preparation of a good colloidal gold reagent, the bicolored guaiac test may be substituted or, owing to its more standard nature, may be used as a control for the Lange test.

Etiology of Cholecystitis.—Material from 106 cases of cholecystitis was examined bacteriologically by Williams and McLachlan. Streptococci have been found in the cystic gland or gallbladder wall in 16 per cent of these and *B. coli* in 20 per cent. Streptococci have been found in the contents in 20 per cent and *B. coli* in 19 per cent. The streptococci isolated have been largely of the type that occur normally in the bowel. No evidence has been obtained that *B. coli* is merely a secondary invader and that the streptococci are the primary invaders. The rôle of both, whether they are primary or secondary invaders, seems to be similar. The organisms isolated have little power of localizing electively in the gallbladder of experimental animals.

Pyrogenic Action of Sulphur in Olive Oil.—Nine cases of dementia paralytica and nine cases of nonsyphilitic functional mental disorder have been treated by Shilvock. No patient has been made worse, either mentally or physically. Abscesses have not appeared at the site of injection. Good pyrexial reactions follow, but their extent may be dependent on the patient, apparently on the activity of the thermogenic center. Thus, one patient regularly had pyrexias of 105 F. with malaria and gave the same response to colsul. Another, however, regularly gave poor pyrexias with malaria but much better with colsul. The pyrexias follow the injection, and there is no delay due to an incubation period. No additional disease is induced nor are agents required to control it. Therefore a febrile state can be induced at any time of the year and the pyrexias can be timed as desired and produced by intramuscular injection. The agent seems to cause a focal reaction in the areas of chronic sepsis. The latter reaction indicates its value and probable mode of action in the treatment of mental disorder.

Expulsion of Ectopic Fetus Papyraceus After Uterine Curettage.—The pregnancy in McFadyean's case was isthmial. The fetus died when 82 days old and was retained until the date of operation, seven weeks later.

Unusual Route of Infection in Cholecystitis.—Rutherford's case was typical. An operation was performed. In apposition with the gallbladder were the cecum and an inflamed appendix. Cholecystectomy and appendicectomy were performed, and the patient made an excellent recovery.

Practitioner, London

125: 257-352 (Aug.) 1930

Some Aspects of Chemotherapy. E. Fourneau.—p. 257.
Clinical Features of Idiopathic Narcolepsy. W. J. Adie.—p. 288.
Pyelography by Uroselectan. R. J. Willan.—p. 296.
Pelvic Joints During and After Parturition and Pregnancy. R. Brooke.—p. 307.
Nervous Dysphagia, with Special Reference to Its Cause. G. Evans.—p. 317.
Early Diagnosis of Primary New Growths of Lung. T. N. Parish.—p. 324.
Technic of Immediate Closure of Empyema (Pneumococcal). F. J. Hathaway.—p. 335.
Incubation Period of Epidemic Encephalitis. H. Mackay.—p. 337.
The Nervous Patient on a Sea Voyage. F. G. MacDonald.—p. 340.

Annales de l'Institut Pasteur, Paris

45: 1-153 (July) 1930

Influence of Calcium on Evolution of Cultures of Anthrax Bacilli. J. Bordet and E. Renaux.—p. 1.
Influence of Calcium on Characteristics of Bacteria. P. Bordet.—p. 26.
Behavior of Rabies Virus in Brain of Rooster and Pigeon. P. Remlinger and J. Bailly.—p. 42.
*Preventive Tuberculosis Vaccination with B C G Vaccine in Kief. M. Nechtadimenko, O. Odrina, M. Syssak and I. Anguenitski.—p. 54.
B C G Vaccine: Further Experimental Studies. B. Elbert and S. Gelberg.—p. 59.
*Harmlessness of B C G Vaccine in Infants. R. Chaussinand and G. Tempé.—p. 65.
*Intramuscular Injection of B C G Vaccine in Children. R. Chaussinand. —p. 71.
Prevention of Tuberculosis by B C G Vaccination in Greece. E. N. Lampadarios.—p. 79.
*Vaccination of Rabbits and Guinea-Pigs Against Cerebral Tetanus. S. Mutermilch and E. Salamon.—p. 85.
Presence and Distribution of Titanium in Bodies of Animals. G. Bertrand and Voronca-Spirt.—p. 102.
Researches on Blood Groups. R. Dujarric de la Rivière and N. Kossovitch.—p. 107.

Preventive Tuberculosis Vaccination with B C G Vaccine in Kief.—In an effort to determine the effects of B C G vaccine, Nechtadimenko et al. conducted a series of experiments on guinea-pigs and rabbits, which they inoculated with from 0.1 to 100 mg. and even 1 Gm. of the vaccine. The injections were given subcutaneously, intravenously and intracardially. From their laboratory tests they conclude that (1) B C G vaccine determines the specific tuberculous process in the organs, but (2) this process normally evolves toward cure except after excessive doses and (3) the lesions thus produced are not reinoculable, or at least in animals in which they are reinoculated, extensive lesions are not produced. Also, 155 new-born infants were vaccinated, 87 of whom lived in a tuberculous environment or in bad sanitary conditions. Most of the children lived more than two and one-half years. Of five deaths, four were due to causes other than tuberculosis. The authors' observations confirmed the harmlessness of the B C G vaccine and established the necessity of isolating the child from all source of contagion during the first month after vaccination. Cases of infection after B C G vaccination were in general mild and the general mortality and the tuberculosis mortality were reduced by the vaccination.

Harmlessness of B C G Vaccine in Infants.—By means of their experiments, Chaussinand and Tempé demonstrated the harmlessness of B C G vaccine given to infants by intraperitoneal, peroral and subcutaneous injections in total amounts varying from 2 to 60 mg.

Intramuscular Injection of B C G Vaccine in Children.—Chaussinand expresses the opinion that the sole advantage of the intramuscular route for injecting B C G vaccine over other methods is the rapid appearance of allergy. Doses of 0.05 or even sometimes of 0.02 mg. generally produce a positive cutireaction at the end of three or four weeks, whereas this reaction appears only toward the sixth week after a subcutaneous injection. Two simultaneous intramuscular injections of 0.025 mg. each would have a beneficial effect on new-born children who cannot be isolated from their infectious surroundings and in whom it is desirable to produce a rapid immunization.

Vaccination of Rabbits and Guinea-Pigs Against Cerebral Tetanus.—Subcutaneous or intraperitoneal vaccination of animals by means of a tetanus anatoxin brings about the formation of tetanus antitoxin in the general circulation. The cerebrospinal fluid of animals thus treated never contains antitoxin. Mutermilch and Salamon also found that the intrameningeal vaccination of animals engenders the formation of antitoxin in the general circulation as well as in the cerebrospinal fluid. Guinea-pigs actively or passively vaccinated either subcutaneously or intraperitoneally usually resist the inoculation of tetanus toxin in the brain. Rabbits, however, are usually sensitive to this inoculation. Animals vaccinated intrameningeally are regularly refractory to the inoculation of tetanus toxin in the brain. The presence of tetanus antitoxin in the cerebrospinal fluid is the sine qua non of the antitetanic neuraxial resistance of vaccinated animals. In those vaccinated intrameningeally the antitoxin is present in the body fluids, while in those vaccinated subcutaneously or intraperitoneally the antitoxin passively penetrates from blood to fluid.

Bulletins et Mém. de la Soc. des Chirurgiens de Paris

22: 389-436 (June 6) 1930

Gynecomastia: Surgical Treatment. Dartigues.—p. 391.
Articular Malformations of Obstetric Origin. R. Massart.—p. 394.
Renal Contusion Followed by Gonococcal Pyonephrosis. A. Lavenant. —p. 406.
Cancer of Thyroid: Total Thyroidectomy. Victor-Pauchet and A. Hirschberg.—p. 413.
Osteosarcoma of Fibula. H. Blanc.—p. 419.
*Exophthalmic Goiter with Marked Exophthalmos. Victor-Pauchet and Le Gac.—p. 422.
Serious Abdominal Disorders Caused by Pin Lodged in Bladder and Appendix: Case. Barbet and Pasteau.—p. 424.
Calculus of Prostatic Cavity After Hypogastric Prostatectomy. G. Lauret. —p. 426.
Foreign Bodies Found in Subdiaphragmatic Digestive Tract of Child: Two Cases. H. Mayet.—p. 429.

Exophthalmic Goiter with Marked Exophthalmos: Case.—The early symptoms in this case had been mistaken for those of diabetes, for which opotherapy and roentgen therapy had proved to be ineffective. Victor-Pauchet and Le Gac performed a two-stage operation with an interval of one and a half months. Immediate notable amelioration of the exophthalmos occurred and the patient's general condition improved markedly.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

(**54**): 1011-1116 (June 23) 1930

Hypophylaxis and Autophylactic Treatment. E. Feuillié.—p. 1012.
Hereditary Syphilis and Asthma. C. Flandin, E. Maison, P. L. Thiroloix and P. Soulié.—p. 1033.
Treatment of Prolonged Pseudomalarial Septicemia: Case. C. Zœller and B. Noyer.—p. 1040.
Neurosyphilis: Extrapyramidal Syndrome. G. Guillain and P. Mollaret. —p. 1041.
Diphtheritic Paralysis Successfully Treated with Injections of Antidiphtheritic Serum. Monier-Vinard.—p. 1047.
*Sero-Attenuation and Immunity in Measles. R. Debré, H. Bonnet, R. Broca, J. Florand and Cros-Decam.—p. 1055.
Histopathology of Tuberculous Lungs Collapsed by Forlanini Treatment. G. Caussade and P. Isidor.—p. 1062.
Dexiocardia Associated with Bronchial Dilatation and Marked Deviation of Trachea. P. Armand-Delille and S. Develay.—p. 1081.
*Essential Primary and Permanent Arterial Hypertension with Severe Hypertensive Paroxysms. Monier-Vinard and Desmarest.—p. 1084.
Malignant Lymphogranulomatosis: Case. F. Bezançon, Duruy, Delarue and Fouquet.—p. 1099.
Malignant Lymphogranulomatosis: Experimental Study. F. Bezançon, Weismann-Netter, Oumansky and Delarue.—p. 1108.

Sero-Attenuation and Immunity in Measles.—The sero-attenuation method of prophylaxis seems to confer a relatively lasting immunity while the absolute seroprevention method does not, according to the numerous observations made by Debré et al. They also record cases in which the attenuation of the disease by the serum was too great to confer more than a slight immunity. A minimum of clinical manifestations seemed indispensable in order to obtain immunity that was at all lasting. Both the disease itself and a mild, modified form artificially acquired by sero-attenuation appeared to confer relatively lasting immunity. The length of time that the organism remains immune is unknown.

Essential Primary and Permanent Arterial Hypertension with Severe Hypertensive Paroxysms.—In this case of permanent hypertension during the menopause there occurred first every few months, then every two or three weeks, paroxysms of hypertension in which the tension was too high to be measured by the clinical manometer. In spite of this fact, neither capillary rupture nor left ventricular deficiency resulted; only the ascending aorta underwent a circumferential distention. The azotemic level seemed to be connected with the tension, since it rose with the paroxysms and returned to normal in the intervals. In their treatment of this case, Monier-Vinard and Desmarest found that the permanent hypertension was only temporarily influenced by suprarenalectomy. Spinal anesthesia caused a marked and dangerous hypotensive collapse. Chloroform brought only a moderate lowering of the tension. The authors found that roentgen therapy did not at the time modify the tension although it may possibly have ameliorated it slightly later on. The simple removal of 12 cc. of cerebrospinal fluid through lumbar puncture resulted in a lowering of the tension, which was maintained thereafter although at a figure still above normal.

(54): 1117-1158 (June 30) 1930

*Mechanism of Syncope: Rôle of Return Circulation. C. Laubry and A. Tzanck.—p. 1118.
Paratyphoid Spondylitis: Surgical Treatment. H. Dufour, Bréchot and Riom.—p. 1120.
Infectious Icterus Followed by Herpes Zoster in Patient with Hereditary Syphilis. J. Gaté and Giraud.—p. 1123.
Gonorrheal Rheumatism in a Syphilitic Patient. J. Gaté and Giraud.—p. 1125.
Erysipeloid Eruptions in Course of Streptococcemia with Phlebitis of Left Axillary Vein. F. Combemale and A. Breton.—p. 1127.
Variations of Leukocytic Formula Due to Poisons of Sympathetic Nervous System. J. Tinel and J. Heurion.—p. 1130.
Multiple Unilateral Syphilitic Paralysis of Cranial Nerves. Dargein and Plazy.—p. 1140.
*Intestinal Occlusion Caused by Inflammation of Meckel's Diverticulum. F. Trémolières, B. Zadoc-Kahn and Kwong.—p. 1142.
Lesions of Gasserian Ganglions in Paroxysmal Arterial Hypertension. J. Lhermitte, F. *Trémolières and P. Veran.—p. 1148.*

Mechanism of Syncope: Rôle of Return Circulation.—Cardiac syncope with its consequent drop in blood pressure is ordinarily attributed to a sudden cardiac deficiency and lack of blood in the arterial system. But the absence of blood, in the opinion of Laubry and Tzanck, may be due either to suppression of the cardiac functioning or to arrest of the return of blood from the periphery to the heart. Their experiments showed that the latter eventuality was the more plausible.

Acute Intestinal Occlusion Caused by Inflammation of Meckel's Diverticulum.—In this case a roentgen examination confirmed the diagnosis of acute intestinal occlusion, which operation revealed to be caused by peridiverticulitis. Trémolières et al. emphasize the importance of roentgen examination in the diagnosis. The examination in such cases should be extemporaneous, rapid and without any preparation, and it must be made with the patient in the vertical position.

(54): 1159-1198 (July 7) 1930

Syphilis and Asthma. Lesné.—p. 1162.
Primary Cancer of Lung Simulating Abscess. E. Sergent, Kourilsky, Imbert and Poumeau-Delille.—p. 1163.
Syndrome of Cerebral Hyposystole. J. Hatzieganu and J. Vancea.—p. 1169.
Failure of Late Preventive Treatment of Neurosyphilis. A. Sézary.—p. 1179.
*Familial Neurosyphilis. A. Sezary.—p. 1182.
Necrotic Pulmonary Nodules with Spirochetes. F. Rathery and R. Waitz.—p. 1184.
Insulin in Suspension in Oil. M. Labbé, R. Boulin and Soulié.—p. 1190.

Familial Neurosyphilis.—Sézary does not accept the theory that hereditary nervous syphilis is due to a neurotropic virus distinct from the dermotropic virus of syphilis. He cites the case of a family in which the virus attacked the nervous system of the parents and of one child, sparing the nervous system of the second child but attacking the bones of the nose. The same virus was therefore neurotropic and osteotropic, which proves that it has no definite organotropism.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

56: 817-876 (June 28) 1930

Internal Drainage of Biliary Tract by Means of Rubber Tube. P. Moure and *J. Sénèque.—p. 818.*
*Preoperative Vaccination in Gastric Surgery. J. Murard.—p. 821.
Volvulus of Right Colon: Detorsion and Appendicostomy. D. Férey.—p. 830.
**Recurrent Dislocation of Shoulder Treated* by Elongation of Coracoid Process. P. Wilmoth.—p. 833.
Postpartum Puerperal Infection Increasing After Curettage. G. Loewy.—p. 839.
Local Anesthesia and Bacteriophagia. Jacquemaire.—p. 842.
Hygroma of Serous Bursa of Iliopsoas Muscle. J. A. Phélip.—p. 845.
Osteosynthesis in Fracture of Medial Epicondyle of Humerus. E. Juvara.—p. 847.
Extirpation of *Inflammatory Strictures of Rectum.* H. Hartmann.—p. 855.
Surgery of Stellate Ganglion. R. Leriche and R. Fontaine.—p. 861.
Testiculo-Epididymal Lesion of Uncertain Diagnosis. Heitz-Boyer.—p. 871.
Regeneration of Neck and Trochanter of Femur After Resection of Head, Neck and Two Trochanters. R. Leriche.—p. 872.

Preoperative Vaccination in Gastric Surgery.—Murard employed preoperative vaccination in eighty-four cases of gastro-enterostomy in an effort to avoid pulmonary complications. Three different vaccines were used. On the whole, the results were somewhat discouraging. In discussing the work, Bazy notes that the absence of specificity in the vaccines usually employed and the difficulty in producing tissue immunity by means of a vaccine injection that does not itself cause a local lesion, seem to indicate that there is no certainty that the organic defenses are sufficiently reinforced by the vaccine to make local complications, pulmonary or other kinds, impossible.

Recurrent Dislocation of Shoulder Treated by Elongation of Coracoid Process.—The dislocation had recurred some sixty times. Wilmoth successfully treated the patient *by creating a subcoracoid, bony abutment.* The extra-articular graft to lengthen the coracoid process and to constitute a stop to oppose displacement of the humeral head was simply put in place without *sectioning the subscapularis muscle or opening* the joint cavity.

56: 877-904 (July 5) 1930

Surgical Treatment of Recurrent Dislocations of Shoulder. Mauclaire.—p. 878.
Total Biliary Fistula Following Cholecystectomy. Dujarier and Roubier.—p. 880.
Inguinal Hernia: Traumatic Rupture of Intestine. R. Chabrut.—p. 883.
*Surgical Treatment of Hydatid Cysts of Spleen. Oulié.—p. 888.

Surgical Treatment of Hydatid Cysts of Spleen.—Basing his conclusions on the observation of eight cases, Oulié considers reduction without drainage the preferable type of operation, reserving splenectomy and marsupialization for special cases.

56: 905-958 (July 12) 1930

Internal Rubber Tube Drainage of Biliary Passages. P. Duval.—p. 906.
Preoperative Vaccination in Gastric Interventions. O. Lambret.—p. 906.
Congenital Pelvic Kidney Observed During Pregnancy. Laffitte.—p. 910.
*Rupture of Spleen and of Left Kidney. P. Goinard.—p. 916.
Pathogenesis of Hydronephrosis Studied by Retrograde or Ascending Pyelography. M. Chevassu.—p. 923.
Diagnosis of Chronic Pancreatitis. R. Grégoire.—p. 945.

Rupture of Spleen and of Left Kidney.—Goinard discusses the cases of four men in whom severe abdominal injury *was associated with wounds of the spleen and left kidney.* The wound of the spleen in three cases had determined an intraperitoneal hemorrhage. The renal wound had formed a large *perirenal hematoma. The condition of the organs* was such that splenectomy and nephrectomy were necessary. Rapid death ensued in one instance. In the fourth case, the wound in the spleen with internal hemorrhage was treated by splenectomy. There was also hematuria due to a subcortical renal lesion. There was no perirenal hematoma. The patient died after three weeks as the result of postoperative pulmonary complications. The author suggests the following three possible types of incision: a lumbar incision, a transverse abdominal incision, and a median laparotomy incision.

Gynécologie et Obstétrique, Paris

21: 465-564 (June) 1930

*Krukenberg's Tumor: Origin. A. Babes and Pantz-Lazarescu.—p. 465.
Duration of Pregnancy According to Greek and Latin Writers. E. Lacoste.—p. 489.
Hematometra with Adhesion of Uterus and Small Intestine: Case. A. V. Vikoulof.—p. 500.

Krukenberg's Tumor: Origin.—Necropsy and microscopic examination revealed a tumor with multiple localizations in the majority of the abdominal organs. In the ovary the tumor was of the Krukenberg type. In this case Babes and Pantz-Lazarescu concluded that the ovarian tumor was secondary and metastatic. After analysis of *three other recorded* cases, the authors agreed that in none of the four was the digestive origin of the tumor admissible.

Journal de Chirurgie, Paris

35: 817-971 (June) 1930

Sacrococcygeal Chordoma: Cases. J. Sénéque and J. P. Grinda.—p. 817.
*Metallic Osteosynthesis: Biologic Considerations. R. Frantz and M. Mayer.—p. 843.

Metallic Osteosynthesis: Biologic Considerations.—In view of the discordance between the perfection of operative means and the uncertainty of prognosis in osteosynthesis, Frantz and Mayer carried out a series of experiments on dogs in order to ascertain precisely the elements to be relied on to establish the relationship between the biologic and the physiologic processes of osteosynthesis. They limited their studies to bone reactions in metallic osteosynthesis for diaphysary fractures and applied to the animals all the metallic devices used on patients in such cases. In a first series of experiments, penetrating and nonpenetrating metallic prostheses were affixed to nonfractured bones. In the second series they were applied to fractured bones. The authors found that a strictly immobile material was well tolerated whatever its volume, whereas a mobile material provoked bone reactions proportionate to the size of the prosthesis. Mobility of the device results in nonconsolidation of the fracture. Removal of the metallic material then often suffices in order to form a bony callus that will assure healing. The more reduced the supporting points of the prosthesis, the more rigorously must immobilization be maintained after osteosynthesis.

Journal d'Urologie Médicale et Chirurgicale, Paris

29: 537-648 (June) 1930

*Correlation Between Testis and Other Parts of Organism. E. Retterer.—p. 537.
*Diagnostic Errors in Renal Tuberculosis. J. Martin.—p. 556.
Importance of Extrarenal Factors in Phenolsulphonphthalein Elimination. H. Blanc.—p. 571.

Correlation Between Testis and Other Parts of Organism.—Retterer finds that the powerful general action which the testis exercises over all the parts of the organism seems essentially due to the epithelial covering of the seminiferous tubules.

Diagnostic Errors in Renal Tuberculosis.—Martin discusses the difficulties and errors involved in the diagnosis of renal tuberculosis, especially in the cases in which one of the indications may be lacking. He finds that a pyuric kidney, when tubercle bacilli have been found in the total urine, is not necessarily tuberculous; neither is a decided deficiency of urea concentration of one side necessarily an indication of tuberculosis in that kidney. Hence, unless tubercle bacilli are actually found in the urine of a kidney, further explorations and tests should be made even though other signs indicate a diseased organ. Cases occur in which clinical signs point to renal tuberculosis and yet operation reveals no lesions. The author reports one case of this kind, with another in which there were small chronic inflammatory lesions apparently not tuberculous. Yet after operation the symptoms disappeared in both instances.

Paris Médical

2: 53-80 (July 19) 1930

Orthopedics and Child Surgery: Annual Review. Mouchet and Rœderer.—p. 53.
*Heliotherapy, Climatotherapy and Surgery in Treatment of Tuberculous Ostearthritis. C. M. Bufnoir.—p. 68.
Subtrochanteric Osteotomy: Indications and Technic. A. Trèves.—p. 72.

Heliotherapy, Climatotherapy and Surgery in Treatment of Tuberculous Ostearthritis.—In the opinion of Bufnoir, surgical treatment alone is not sufficient to cure bacillary ostearthritis, which is merely a localization of a general disease. It should be accompanied by heliotherapy and climatotherapy, which improve the general condition of the patient and enable him to offer more resistance to the infection. In mild cases, especially among children, helioclimatotherapy alone is sufficient.

Presse Médicale, Paris

38: 921-936 (July 9) 1930

*Gastroduodenal Hemorrhages in Digestive Perivisceritis. M. Chiray and P. Amy.—p. 921.
Life Cycle of Eberth's Bacillus and of Paratyphoid Bacilli. P. Hauduroy.—p. 924.

Gastroduodenal Hemorrhages in Digestive Perivisceritis.—In regard to the etiology of such digestive disorders as hematemesis and melena, Chiray and Amy suggest, in addition to the commonly ascribed causes, splenomegaly, perivisceritis and disturbances in the passage of food through the colon. The pathogenesis of digestive hemorrhages concomitant with splenomegaly is complex. It is certain, however, that in such cases there is a hypertension of the splenogastric circulation, which may be caused by an intrahepatic lesion or a phlebitis of the extrahepatic portal system with the contractility of the spleen as a possible accessory cause. Facts concerning hemorrhages in perivisceritis are not nearly so well known. Digestive hemorrhages occur frequently in secondary periduodenitis with infectious conditions in the organs of the right iliac fossa. Gastritis and congestive, hemorrhagic and sometimes necrosing duodenitis are maintained and aggravated by a perivisceritis developing at the same time. The latter seems to evolve independently in spite of the removal of the infected area that produced it, while repeated interventions in these inflammatory foci serve only to aggravate the peritoneal reactions. The authors cite numerous cases of dyspeptic disorders with lowered general resistance and localized abdominal pains. In all of these, after appendectomy, adhesions occurred in the subhepatic area, followed by bleeding. Successive operations showed no ulceration. Subhepatic peritonitis increased. In such cases perivisceral complications seem to be provoked or at least favored by the first subhepatic operation. Prior to any intervention the authors find an appendectomy necessary, or, if there is no appendix, liberation of the ileocecum preceded and followed by a long rest. Of the digestive hemorrhages linked with disturbances in the passage of food through the colon, little is yet known. In two cases cited by the authors, concomitant infectious phenomena of the right iliac fossa were observed, as well as intoxication disturbances with liver disorders. They call attention to the fact that congestive duodenitis may be provoked by left colic stasis, particularly in dolichocolon.

38: 993-1008 (July 23) 1930

*Amebic Abscess of Lung. M. Labbé.—p. 993.
*Visceral Leukopedesis: Low Leukocyte Count During Digestion. M. Loeper and L. Michaux.—p. 994.
Total Tonsillectomy: Sluder Method. G. Portmann.—p. 997.
Tuberculous Pneumonia: Anatomic and Clinical Study. P. Ameuille, R. Huguenin and P. Foulon.—p. 998.
Gallstones: Formation and Structure. A. Bergeret and J. Dumont.—p. 1002.

Amebic Abscess of Lung.—Labbé reports a case of amebic abscess of the lung with long standing refractory amebic dysentery in which he was unable to isolate the specific ameba. A rapid cure was effected by means of six daily doses of 0.8 Gm. of emetine hydrochloride.

Visceral Leukopedesis: Low Leukocyte Count During Digestion.—The numerical curve of blood leukocytes at the beginning of digestion often falls 1,500 or 2,000 cells per cubic millimeter. Its frequence is such that it should be considered from a physiologic rather than from a pathologic standpoint in the opinion of Loeper and Michaux. The leukocyte afflux is constant in the viscera during the period of digestion. It is high numerically, which accounts for the decrease in the blood leukocytes. The initial leukopenia of digestion is above all a leukopenia of displacement due to the visceral attraction of the white cells. By means of observations of patients and animals the authors found that leukopedesis may occur in the stomach, intestine, liver and kidney. Wine was the medium used to perform the experiments. Gastric, intestinal, hepatic and renal leukopedesis was noted from within one to three hours after ingestion or injection of the wine. Tubages performed on patients with gastric leukopedesis showed 1,500 leukocytes per cubic millimeter at the end of the first hour and 2,000 at the end of the second. Food introduced into the digestive tract determines a leukocytic attraction which in its turn acts as a marked leukotropic agent.

Revue de Chirurgie, Paris

68: 1-84 (Jan.-Feb.-March) 1930

*Mechanophysiotherapy and Surgical Therapeutics. E. Apostoleano.—p. 1.
Primary Tuberculosis of Patella. M. Patel and J. Marion.—p. 49.
*Encephalic Accidents After Ligature or Unilateral Resection of Internal Jugular Vein. J. Creyssel and M. Douillet.—p. 62.

Mechanophysiotherapy and Surgical Therapeutics.—Apostoleano conducted a series of experiments on horses and dogs to ascertain whether delay in cicatrization of wounds was due to overzealous treatment, especially to chemotherapy and bandaging. He found mechanophysiotherapy sufficient for the treatment of wounds. Under its action they healed more quickly and surely. Bandaging is an evil that is, however, necessary in certain well defined cases, but ordinarily the more infected a wound is, the more harmful the results produced by the dressing that covers it. Aerothermotherapy and heliotherapy are more effective healing agents than the usual dressing and antiseptic treatments.

Encephalic Accidents After Ligature or Unilateral Resection of Internal Jugular Vein.—Creyssel and Douillet report three such cases in the course of tumor operations. One case was followed by transitory disorders of the peripheral circulation, the second by brachial monoplegia, while death ensued in the third case. The authors classify such phenomena in three categories: slight, moderately serious, and fatal accidents. In the fatal case necropsy and microscopic examination showed that it was a question of a venous hypertension process. The insufficiency of the remaining jugular system after a unilateral resection accounts for the fatal venous stasis. If this insufficiency is slight, the resulting disorders are mild or transitory; if more complete, the disorders are permanent and fatal. The frequency of fatal cases is fortunately low. It seems impossible to foresee the occurrence of such accidents. When serious and alarming symptoms develop, the preferable method of checking them seems to be a local venesection, obtained by loosening the ligature of the central jugular end.

Revue Française de Pédiatrie, Paris

6: 265-423, 1930

*Creatinuria and Carbonuria. L. Garot.—p. 265.
Acidosis in Infants. S. E. Burghi.—p. 335. C'td.

Creatinuria and Carbonuria.—From the beginning of his life the nursling eliminates creatine and creatinine in variable proportions, with the latter habitually predominant. The average amount of total creatinine excretion is 24.3 mg. per kilogram of body weight in twenty-four hours. This amount of excretion is independent of the nitrogen richness of the food within the limits in which it may vary in infant dietetics. The creatinine eliminated is of exclusively endogenous origin; the creatine has a double origin: endogenous and exogenous. The exogenous fraction of creatine is variable in different patients. It is to be determined by protein inanition tests. Garot calls attention to the characteristic modifications undergone by the excretion of creatinic bodies in infantile denutrition. In cases of hypo-athrepsia of the first degree, and in a number of those of the second degree, it maintains an almost normal value with a slight tendency to decrease, the tendency bearing only on the creatine. In other cases of hypo-athrepsia of the second degree, and of athrepsia, the excretion of creatinic bodies is considerably diminished. The decrease concerns both the preformed creatinine and the creatine, but the latter predominantly. The subdivision of denutrition in nurslings into hypo-athrepsia of first and second degrees and athrepsia does not indicate the chronological order in appearance of the nutritional alterations. From the physiologic point of view, the denutrition seems to evolve in two phases, of which the second is realized only in the course of second degree hypo-athrepsia. Its appearance cannot be put into relationship with a definite percentage of weight deficiency. During the first physiologic phase of denutrition, the extent of exchanges (of which the total creatinine is a good measure) does not seem altered. In the course of the second phase there seems to be a serious decrease in thermogenesis. The almost complete disappearance of creatine in the urine in the course of the second stage of denutrition prevents considering serious hypo-athrepsia as simple inanition since progressively increasing creatinuria is the most constant evidence of nutritional deficiency. The author believes that this extensive research further weakens the opinion of those who consider creatinic excretion as proportionate to muscular mass.

Policlinico, Rome

37: 309-360 (July 1) 1930. Medical Section

*Functioning of Bone Marrow in Pulmonary Tuberculosis. R. Gosio and A. di Natale.—p. 309.
Plasmatic Colloid Lability in Tuberculosis. G. F. Capuani.—p. 329.
Changes in Blood Sugar Index Induced in Hyperglycemic and Glycosuric Persons by Minimal Doses of Salts of Oligodynamic Metals. G. Sabatini and M. Pazzi.—p. 338.
Pancreatic Secretions Following Injection of Peptones. R. Carusi.—p. 344.
Pulpitis Due to Streptococcus Viridans; Endocarditis Lenta; Periarticular Fibrous Nodules. M. Scelba.—p. 353.

Functioning of Bone Marrow in Pulmonary Tuberculosis.—Gosio and di Natale endeavor to construct for each patient on the basis of clinical and laboratory observations the nature of the functioning of the bone marrow at the time of observation, and seek to determine to what extent the functioning may be due to the specific morbid factor and how far it may be dependent on other conditions. In evaluating the functional power of the bone marrow, two principal factors must be taken into account: (1) the soil on which the infection develops, which may influence diversely the type and the duration of the reaction, and (2) the fact that a given hematologic symptom may intervene at an absolutely different time from the clinical evolution and hence assume a diverse significance and importance if associated with factors that may have contributed to its causation. Neglecting these factors that delimit the significance of the hematologic examination, they considered the percentages, deriving them from the examination of 200 patients affected with the most diverse clinical types of pulmonary tuberculosis.

37: 981-1016 (July 7) 1930. Practical Section

Six Carriers of Endameba Histolytica in Family of Ten Members. T. Dell'Aquila.—p. 981.
*Perforation of Uterine Artery in a Parametric Purulent Sac. G. Inglima.—p. 983.
Rupture of Extra-Uterine Pregnancy: Case. A. Barbieri.—p. 935.

Perforation of Uterine Artery in a Parametric Purulent Sac.—Inglima reports an interesting case of rupture of an extra-uterine pregnancy, bringing out the diagnostic difficulties of *similar cases and emphasizing that it is the duty of the physician to hospitalize such patients at once.*

37: 1017-1052 (July 14) 1930. Practical Section

Heterologous Implants of Suprarenals in Rabbits. N. V. Bedarida.—p. 1017.
*Grave Syncope Due to Pneumothoracic Insufflation, Controlled by Double Intracardiac Injection of Epinephrine. G. Bonanno.—p. 1019.
Three Hundred Appendectomies Without Burial of Stump. B. Masci.—p. 1021.

Syncope Due to Pneumothoracic Insufflation, Controlled by Intracardiac Injection of Epinephrine.—Bonanno has found the endocardiac injection of a 0.1 per cent solution of epinephrine always harmless and often effective. The method is especially adapted to syncope. In diseases that cause death through profound changes in the tissues, the intracardiac injection of epinephrine is not indicated. The procedure may be employed repeatedly in the same subject with impunity. It should be applied promptly as soon as there are signs of stoppage of the heart (within ten minutes). The technic of the puncture is simple and few instruments are required. It is preferable to apply the injection to the left ventricle. The method is destined to become widely used and to render ever increasing service, for which reason it should be available to every medical practitioner.

Rivista di Clinica Medica, Florence

31: 505-556 (May 15) 1930

Pseudoleukemic Lymph Node Tuberculosis: Case. F. Schupfer.—p. 505.
*Pressure Variations in Brachial Artery Under Influence of Prolonged Compression with Arm Sphygmomanometer. F. Forti.—p. 517.
Acute Erythremic Normoblastic Myelosis with Reticulo-Endotheliosis. P. Canale.—p. 530.

Pressure in Brachial Artery Under Influence of Prolonged Compression with Sphygmomanometer.—Forti recalls that, in determining arterial pressure, in many examinees the sphygmomanometric values obtained at the first trial are modified (usually lowered) at later trials. In explanation of this fact, various factors have been invoked, some of a general and some of a local nature. The latter may act in various ways: through the reflexes produced as a result of stimulation of the compressed nerve trunks; through the influence exerted by the arm band on the walls of the artery, and, finally, by disturbances of circulation induced below the arm band by the interruption of the blood stream. In his experiments the author used the Riva-Rocci apparatus. The results of the experiments confirm the existence of pressure modifications due to the influence of the sphygmomanometer. He noted that such modifications were not only downward, as has been more commonly noted, but also upward with greater frequency than has been reported. A knowledge of these facts, he thinks, has a certain interest from a practical point of view, as it aids in the evaluation of the data of clinical and experimental studies on arterial pressure. The differences do not usually exceed from 5 to 10 mm. of mercury, but occasionally they amount to 15 and even 20 mm. The author emphasizes that it is well to take account of these possibilities in order to avoid drawing wrong inferences from erroneous observations.

Rivista di Patologia e Clin. della Tubercolosi, Bologna

4: 441-532 (June 30) 1930

Filtrable Tuberculosis Virus. A. Sega and A. Brustolon.—p. 441.
Symptoms and Pathogenesis of Total Mediastinal Hernia. F. Costanzi.—p. 458.
*Tuberculosis Diffused to Abdominothoracic Lymphatics with Lymphatic Propagation from Tracheobronchial Lymph Nodes to Lungs and Pleuras. V. de Benedetti.—p. 465.
*Value of Intracutaneous Reaction to Resorcinol for Early Diagnosis of Pulmonary Tuberculosis. G. Marcialis.—p. 476.
Acoustic Theory of Physiologic Tracheobronchial Respiration. C. Minerbi.—p. 489.
Thoracic Cutaneous Telangiectasias in Tuberculous Persons. C. Alessandri.—p. 502.

Tuberculosis Diffused to Abdominothoracic Lymphatics.—De Benedetti describes a case of genital tuberculosis with invasion of the abdominothoracic lymph nodes and spread of the virus to the tracheobronchial lymph nodes and a case of diffuse pleuropulmonary tuberculosis with probably intestinal port of entry. He discusses briefly the conceptions of Costantine and of the French school on the importance of the hilus in the genesis of pulmonary tuberculosis in the adult. He regards as justified the tendency of certain modern phthisiologists to raise objections to the theory of direct infection and superinfection from the alveolus, holding that the cases reported constitute exceptional clinico-anatomic observations.

Intracutaneous Reaction to Resorcinol for Early Diagnosis of Pulmonary Tuberculosis.—Marcialis concludes that the intracutaneous reaction to resorcinol will not serve in clinical practice for the early diagnosis of pulmonary tuberculosis, not only because it gives negative results in a notable percentage of cases in which there are well founded reasons to consider the organism infected, but, above all, because the outcome is negative also in many cases in which the tuberculous infection is clinically confirmed, while the reaction is sometimes positive in cases in which no anamnestic, clinical or roentgen data point to the presence of tuberculosis.

Archivos de Cardiología y Hematología, Madrid

11: 257-304 (June) 1930

*Arterial Tension in Chronic Pulmonary Tuberculosis. C. Diez Fernández and R. Navarro Gutiérrez.—p. 257.
Effects of Zinc Phosphide on Fibrinogen Content of Blood. F. Más y Magro.—p. 266.

Arterial Tension in Chronic Pulmonary Tuberculosis.—Diez Fernández and Navarro Gutiérrez determined the arterial tension of 180 patients with chronic pulmonary tuberculosis, observed for more than one year. The patients were grouped, first, according to their age into three subgroups (less than 20 years, from 20 to 40 years and more than 40 years), secondly, according to the duration of the tuberculosis (less than one year, from one to three years and more than three years), and, thirdly, according to the anatomic and clinical forms of tuberculosis (fibrocaseous, fibrous and hilar and exudative). The authors consider that more important than the determination of the condition of the arterial tension is the determination of the modifications of the tension curve, especially when the modifications are observed over a long period of time. They present their results in tables and conclude that there is no proof that there exists a tensional difference in either arm in relation to the localization of the tuberculous lesion. It has not been proved that hypotension is more frequent in young persons than in older ones. The evolution of the arterial tension in pulmonary tuberculosis is of only relative value. It is of value only when associated with the clinical symptoms. Pneumothorax and phrenicectomy do not modify the tensional curve.

Semana Médica, Buenos Aires

37: 1545-1620 (June 19) 1930. Partial Index

Results of Nephropexy (Marion) as Observed by Pyelography. J. Salleras.—p. 1545.
*Experimental Ossification: Formation of Bone in Connective Submucous Tissue of Renal Pelvis. O. F. Mazzini.—p. 1581.
*Varicocele: Technic of Surgical Treatment. J. H Macome.—p. 1587.

Experimental Ossification.—Mazzini's experiments confirmed those of Sacerdotti and Fratin, which prove that bone is formed at the expense of the connective submucous tissue of the renal pelvis of a rabbit after a lapse of time during which a ligation of the vessels of the hilus of the kidney has been done, without any participation of the osteogenic tissues. The author ligated the pedicle of the left kidney of two rabbits. The animals were killed four months later. In one of the animals the difference between the right and left kidneys was more marked than in the other animal (10 and 2 Gm. and 13 and 5.5 Gm., respectively).

Varicocele: Technic of Surgical Treatment.—Macome says that the operations suggested by del Valle, by Ivanissevich and by Posadas for the surgical treatment of varicocele are the most simple and, if properly used, they yield the best results. The author describes the technic of the three operations. Regardless of the surgical method used, the hygienic treatment and the avoidance of venereal excesses and of constipation are important. In cases of ectasia of the anterior or large part of the venous plexus of the cord with marked ptosis of the testis, the operation of del Valle should be used. When ptosis of the testis is insignificant and the varicocele is of a funicular type and there is reflux, the operation of Ivanissevich should be preferred. When there exists visceral total ectasia of the venous plexus of the cord associated with marked ptosis of the testis, the operation of Posadas is indicated.

Siglo Médico, Madrid

85: 661-688 (June 21) 1930

*Quinine Allergy. S. Larregla.—p. 661.
Laryngotracheal Complication in Ozena: Local Application of Cajuput Oil. G. Uruñuela.—p. 664.

Allergy After Treatment with Quinine Sulphate.—Larregla reports the case of a girl, aged 16, who had influenza. Among the drugs administered was quinine sulphate. Soon afterward the temperature rose to 102.2 F. and the following day the patient had fever, headache and photophobia, with a generalized rash. The condition was considered to be an allergic reaction to quinine. The immediate suppression of the drug and the administration of calcium chloride and of a preparation of fish albumins caused the disappearance of all the symptoms, and the recovery after a few days. Idiosyncrasy to quinine was strongly suspected when the patient's history showed that one year before she had had an infection (diagnosed as intestinal infection) in which quinine was administered. During this infection the patient had developed a protracted typical dermic exfoliation associated with edema, vomiting, constant and high fever, albuminuria and great emaciation. Some time after recovery the reaction to quinine was tested. A scratch was made on each forearm. In one of the scratches a drop of physiologic solution of sodium chloride was placed and in the other a drop of quinine sulphate. The first scratch remained unchanged whereas the second scratch after one hour presented a marked redness, which persisted for several days. The father of the patient had an idiosyncrasy to tincture of iodine. The author advises that one have in mind such cases of allergic reaction when this condition appears during the evolution of a disease in which chemotherapy is used.

85: 689-716 (June 28) 1930

*Problems Related to Babinski Reflex. C. Juarros.—p. 689.
Treatment of Imminent Abortion. J. Lacasa Val.—p. 694.

Problems Related to Babinski Reflex.—To prove the diagnostic value of the Babinski reflex, Juarros made observations in three groups of children: 200 new-born infants during the first hour of life; 150 backward children of a psychiatric school of abnormal children (with oligophrenia, but without focal or cerebral lesions); and 200 infants aged 1 week. He concludes that there are two types of Babinski reflex, the physiologic reflex and that of a peripheral origin. Whenever a positive Babinski reflex is elicited, one should think of the possibility that the reflex may have a peripheral origin. The physiologic Babinski reflex may exist in normal new-born infants with no disturbances of the nervous system. Its presence in them, however, is not constant. The presence of the reflex during childhood is not an indication of mental backwardness. It is probable that the so-called physiologic Babinski reflex is governed by factors similar to those which govern the reflex of peripheral origin; that is, the presence of a motor disequilibrium between the flexor and extensor muscles. The disequilibrium may have been determined during intra-uterine life, by the situation of the toes of the fetus in the uterus. The upright position does not play a part in the production of the physiologic Babinski reflex, which is not caused by an incomplete development of the pyramidal tract or by a predominant influence of extrapyramidal origin. The method and conditions under which the reflex is elicited may have an influence on its presence or absence. The diagnostic value of the Babinski reflex should be revised. The reflex may appear in some patients without lesions of the pyramidal tract and may be absent in others in whom pyramidal disturbances are obvious.

Beiträge zur klinischen Chirurgie, Berlin

149: 501-676 (June 14) 1930

Crossed Dystopy of Kidney. F. Landois —p. 501.
*Nephrogenous Scoliosis. C. Blumensaat and F. Nestmann.—p. 508.
*Radical Operation for Carcinoma of Rectum. F. Dannheisser.—p. 525.
*Surgical Treatment of Habitual Dislocation of Shoulder. L. Oetiker. —p. 537.
Principles of Treatment of Fractures. F. O. Mayer.—p. 575.
Traumatic Lesion of Normal Appendix Result of an Abdominal Injury. T. Ott.—p. 589.
Ultimate Fate of Bone Fragments in Springer's Operation. G. Epstein and J. Kasakević.—p. 594.
*Mixed Tumors of Scalp. K H. Erb.—p. 617.
*Iodine Disinfection of Skin. Twenty-Two Years' Experience with Grossich's Method. D. Curri —p. 626.
Acute Invagination of Small Intestine in Childhood Caused by an Inverted Meckel's Diverticulum. S. Lenner.—p 631.
Bilateral Resection of Frontal Bone as Avenue of Approach to Hypophysis Cerebri. A. Chiasserini.—p. 641
Treatment of Furuncle, Furunculosis, Carbuncle and Sweat Gland Abscess. W. Himmelmann.—p. 652.
Bone Transplantation: Discussion of Problem on Basis of Histologic Examination of Albee's Bone Transplant. R. Böhmig.—p. 663.

Nephrogenous Scoliosis.—Blumensaat and Nestmann call attention to the fact that in most cases of kidney disease there results some scoliosis of the lumbar segment of the spinal column. In cases of renal calculus the curve is convex to the stone; in hydronephrosis, pyonephrosis, pyelitis, tuberculosis, paranephritis and mobile kidney it is concave to the lesion. In cases of tumor the direction of the scoliosis is variable. The authors prefer the term nephrogenous scoliosis to the older term nephritis scoliosis. In the stone cases it is the result of a protective action; in the hydronephrosis cases it is a mechanical result and in the remaining cases it is caused by the contraction of the muscles on the diseased side. These observations are believed to have not only diagnostic but also therapeutic value.

Radical Operation for Carcinoma of Rectum.—Dannheisser analyzes 180 cases. Ninety-nine were not operable. Treatment by radiation and by colostomy was given and the patients succumbed in from six to twelve months after the institution of the treatment. The remaining 81 patients were subjected to operation—27 amputations with sacral anus; 37 sacral resections; 6 Hochenegg operations; 11 abdominosacral resections. Twenty-four patients died shortly after the conclusion of the operation; 20 after leaving the hospital (16 from a recurrence); 37 are living, 7 still under observation, 3 with a recurrence. Cure after three years was observed in 40 per cent; after five years in 46 per cent. Of the healed sacral resection cases, 77 per cent of the patients have continence; 10 per cent have an intestinal fistula. From every point of view, the author prefers sacral resection to any other operative procedure.

Surgical Treatment of Habitual Dislocation of Shoulder.—Oetiker reviews the results of eleven cases in which he operated. He prefers plication of the capsule when no other lesions than the dislocation are present. He presents a splendid review of all such cases recorded in the literature since 1918.

Mixed Tumors of Scalp.—Erb reports a case of tumor of the scalp over the right parietal bone apparently caused by a trauma—a fall from a ladder. Histologic examination showed that it contained mucous membrane, cartilage, bone and numerous epithelial elements—adenomatous, cylindromatous and carcinomatous. Clinically, the tumor seemed to be of the benign variety. Some neuro-epithelial elements were also found. The author assumes that an embryologic rest consisting of epithelium and periosteum was the point of origin of the tumor.

Grossich's Method of Iodine Disinfection of Skin.—After twenty-two years' experience with this method, Curri concludes that it is far superior to any other method. He has employed it in 20,000 operations with invariably good results. He feels that the "urge" to discover newer and, possibly, better methods has led to failure to appreciate this method at its true value.

Deutsche medizinische Wochenschrift, Berlin

56: 1159-1202 (July 11) 1930

*Value of Scarlet Fever Vaccination. Schottmüller.—p. 1159.
Calmette's Vaccination and Fatalities in Lübeck. A. Ascoli.—p. 1160.
Size of Antitoxin Doses in Treatment of Diphtheria. F. Reiche and E. Reye.—p. 1162.
Are Acquired Qualities of Pathogenic Protozoa Retained During Passage Through Natural Host? C. Schilling and H. Schreck.—p. 1163.
Surgical Treatment of Hypertrophic and Pendulous Breasts. A. W. Meyer.—p. 1165.
*Double-Barreled Laryngeal Intubation Instrument for Filling Lung with Contrast Medium for Diagnostic and Therapeutic Purposes. A. Baisch. —p. 1166.
Utilization of Protein from Soy Beans and of a Soy Protein Preparation by Animals and Human Beings. J. Kapfhammer and H. Habs. —p. 1168.
Experiences of a Country Physician in Obstetrics. Knopf.—p. 1170. Cen.
Tribromethanol Anesthesia. F. Eichholtz.—p. 1172.

Value of Scarlet Fever Vaccination.—Schottmüller describes a scarlet fever endemic in a children's home in Hamburg, which was checked by vaccination. He points out that prophylactic active immunization with scarlet fever streptococcus toxin was first successfully employed by Gabritschewsky. Passive immunization with scarlet fever streptococcus immune serum gives immediate protection but is effective for only two weeks, whereas prophylactic active immunization becomes effective only after several weeks but after that gives protection for about two years or longer. By employing both these methods the spread of the endemic was prevented. The efficacy of the vaccination was also proved by Dick tests. In the conclusion the author states that immunity against the scarlet fever streptococcus, which is produced either actively or passively, protects primarily against an outbreak of the disease. But even during the beginning or toxic stage of scarlet fever the immune serum is effective. However, the second stage of the disease is not influenced by vaccination. The efficacy of active and passive immunization with products of the scarlet fever streptococcus proves that this specific streptococcus is the only cause of the disease.

Double-Barreled Laryngeal Intubation Instrument for Filling Lung with Contrast Medium.—The double-barreled laryngeal intubation instrument recommended by Baisch is a modification of O'Dwyer's tube. Following a description of the construction of the apparatus and the technic of its introduction, several case reports are given and illustrated with roentgenograms. Iodized sesame oil 40 per cent is the contrast medium most commonly used. The advantages of the double-barreled laryngeal intubation instrument are summed up as follows: 1. It involves no danger when used by the physician who knows the technic of intubation. 2. It is simple and the aid of a specially trained laryngologist is not necessary. 3. In children the filling of the lung by means of the double-barreled laryngeal tubes is the method of choice.

Deutsche Zeitschrift für Chirurgie, Leipzig

226: 1-163 (July) 1930

*Reinfusion of Blood Extravasated into Peritoneal Cavities. H. Heusser and H. Stössel.—p. 1.
*Inclusion of Nonabsorbable Suture Material in Healing Wound. A. Christ.—p. 13.
Toxic Adenoma of Thyroid. F. Merke.—p. 25.
*Postoperative and Experimental Tetany. A. Christ.—p. 34.
*Tuberculosis of Tongue. G. Nicolas.—p. 46.
Tabetic Laryngeal Crises: Surgical Aspects. L. Schiff.—p. 66.
*Experimental Tumors of Bladder. W. Schär.—p. 81.
Secretion and Resorption of Epididymis. M. Richard.—p. 98.
*Tuberculosis of Spleen. B. Cynman.—p. 110.
*Acute Atonic Dilatation of Stomach in Acute Infectious Diseases. M. Petitpierre.—p. 125.
Deep-Seated Stenosis of Duodenum: Result of Nontuberculous or Tuberculous Swelling of Lymph Nodes of Root of Mesentery. H. Wantoch. —p. 135.
Lymphadenitis Dissecans of Mesentery. M. Mesnik.—p. 140.
*Formation of Tumors in Hernial Sac. M. Richard.—p. 146.
Gas Gangrene in Nephrectomy Wound in Case of Tuberculous Pyonephrosis. R. Howald.—p. 152.
Dislocation of Peroneus Tendons. M. Richard.—p. 156.
Effect of Roentgen Rays on Urea and Ammonia Contents of Blood. H. Wantoch.—p. 160.

Experimental Study of Blood Extravasated into Body Cavities.—The blood examined by Heusser and Stössel was taken from the peritoneal cavity of rabbits. It is said that macroscopically it appeared to be normal. Slight degrees of hemolysis could not be detected with the eye; high degrees were easily detected. Such blood contains many clots. The blood that is obtained by filtration of the whole mass should not, on the whole, clot further, but it cannot be stated absolutely that this is the case, because cases of clotting are on record. Hence, care should be taken in this regard when such blood is reinjected into the circulation. It was also determined definitely that, while blood was flowing into a body cavity, resorption of the exudate was also taking place. The corpuscular elements are greatly diminished in extravasated blood; likewise the number of leukocytes and the hemoglobin. The resistance of the erythrocytes is diminished considerably, a point to be borne in mind when one wishes to reinject blood extravasated into a body cavity. This procedure is in need of much more investigation before it can be stated definitely that it has a place in therapeutics.

What Happens to Suture Material?—Christ has made a histologic and bacteriologic study of the fate of various kinds of suture material in several hundred aseptic operations for goiter, hernia and loose joint cartilages. He found that every kind of material yielded similar results depending entirely on its asepsis, the amount of suture material embedded, the possibility of secondary infection, the local tissue reactions and the general reactions of the individual. Selection of suture material should be made on the basis of how easily it can be sterilized and handled; its strength and elasticity. Silk and linen is the equal of any suture material, and preferable to any other. So-called suture infections may be prevented by a perfect aseptic operative technic; complete asepsis of the material to be used; absence of infective foci in the tissues surrounding the field of operation and "atraumatic" postoperative treatment. This is especially applicable to operations on the thyroid. Suture of the capsule should be made to obviate the flow of secretion into the wound afterward, and prompt evacuation by puncture of hematomas, serous effusions and thyroid secretions should be performed.

Postoperative and Experimental Tetany.—Christ asserts that tetany is a general intoxication. The appearance in the blood of noxious substances the result of faulty metabolism leads to a lowering of the blood calcium and that is the direct cause of tetany. The severity of the tetany is dependent on the fall of the calcium curve. Therefore, the author recommends that, in cases of human tetany, viosterol (vitamin D) be administered in sufficient doses. Acute and chronic forms also call for the administration of organ extracts and calcium. In the acute cases it is important to give large doses of calcium. Blood transfusion is indicated. Milk diet, vegetables and the avoidance of meat foods is essential. Frequent examinations of the calcium curve are of great value in regulating the treatment.

Tuberculosis of Tongue. — This review of 217 cases by Nicolas shows that tuberculosis of the tongue occurs more often than does tuberculosis of any other structure of the mouth, including the tonsils. The left side is the usual seat of the disease; men are affected more often than women, in the ratio of about six to one. The disease is always secondary, the infection coming through the blood or lymph stream. Primary, exogenous infection is exceedingly rare. The only treatment is excision and cauterization. The prognosis is dependent on the general condition of the patient, the stage of the primary focus, usually in the lung, and the course of the primary disease.

Experimental Production of Bladder Tumors. — By means of inhalation of aromatic amino preparations, especially naphthylamine, Schär succeeded in producing experimental carcinomas of the bladder.

Primary Tuberculosis of Spleen.—Cynman reports a case of primary tuberculosis of the spleen, without a tuberculous focus elsewhere in the body, in which the spleen was removed. Three and a half years later there was no evidence of tuberculosis anywhere.

Acute Dilatation of Stomach.—Petitpierre calls attention to the fact that not only may dilatation of the stomach occur after operation, combined with general anesthesia, but that it is not entirely an infrequent occurrence in cases of acute infectious disease. He cites a case of pneumonia in which this complication was noted on the fifth day of the disease. The symptoms led to the suspicion that pneumococcus peritonitis or a perforated appendix was responsible. Neither was found at operation; instead the stomach was greatly enlarged and dilated. It was punctured and about 2.5 liters of fluid was removed. The patient died the following day.

Tumor Formation in Hernial Sac. — In Richard's case numerous adenocarcinomatous masses were found on the wall of the sac and the serosa of the portion of the sigmoid that was lying in the sac. The patient died four months after the operation in a state of cachexia but free from symptoms of obstruction of the intestinal tract. A case of primary fibroma of the mesentery contained in a hernial sac is also reported.

Medizinische Klinik, Berlin

26: 1027-1064 (July 11) 1930

Pathogenesis of Tuberculosis in Isolated Organs. Anders.—p. 1027.
Cholelithiasis: Newer Diagnostic Methods, Especially Roentgenoscopy. R. Schmidt.—p. 1029. C'cn.
*So-Called Acetonemic Vomiting in Children. Brückner.—p. 1035.
Tribromethanol Twilight Sleep During Parturition. E. Martin.—p. 1036.
Cure of Valvular Pneumothorax by Means of Phrenic Exeresis. R. Weiss.—p. 1037.
Pyonephrosis with Peculiarly Stratified Faceted Renal Calculi. E. Saupe.—p. 1038.
Brucella Abortus Infection in Man. F. Hagemeister.—p. 1039.
Actinomycosis of Both Uterine Tubes. H. Sprengell.—p. 1040.
*Perforation of Ulcerated Colon Caused by Contrast Medium. L. Kaulich.—p. 1042.
Disturbances in Blood Pressure Regulation in Exophthalmic Goiter. E. Baráth.—p. 1043.
Examination of Cerebrospinal Fluid by Means of Shellac Reagent. H. D. von Witzleben.—p. 1045.
Diagnostic Difficulties in Diseases of Abdominal Organs: Diabetic Coma and Peritonitis. G. Scherk.—p. 1046.

So-Called Acetonemic Vomiting in Children.—Brückner points out that vomiting is a frequent symptom in children. There is hardly any children's disease during which it may not occur. However, small children and those of early school age occasionally show a pathologic condition in which vomiting is the main symptom. This so-called acetonemic vomiting is most frequent in neuropathic children aged between 3 and 7 years. In most cases, attacks of vomiting recur periodically. They develop after an indisposition lasting several days or develop suddenly after a psychic shock. The vomit consists at first of fragments of food and later of a greenish watery substance. The vomiting increases when food intake is attempted, but it also continues when the child does not eat. The children lose weight rapidly, dark rings show around the eyes, the tongue and skin are dry, and the turgor is reduced. The respired air has the odor of fruit. The abdomen is flat, the liver does not show marked enlargement and the temperature may show a slight increase, but the pulse is usually normal. The quantity of urine is reduced and it contains acetone, beta-oxybutyric acid and diacetic acid but neither protein nor sugar. The elimination of ammonia is increased and the alkali reserve in the blood plasma is reduced as a sign of existing acidosis. The blood picture does not show characteristic changes. The sensation of pressure and abdominal pains are muscular pains caused by the effort of vomiting. After two or three days the vomiting and the acetonuria decrease and the appetite increases. The opinions concerning the etiology of the disorder are still divided. The author reviews several theories and comes to the conclusion that it is a neuropathic disorder, probably due to a disturbance in the nervous regulatory apparatus for the carbohydrate metabolism. In the diagnosis of the condition the differentiation from appendicitis and from basilar meningitis is of primary importance. The vomiting and the odor of the respirated air are decisive for the diagnosis. In acetonemic vomiting the abdomen is flat and, although painful, a special point of pressure and muscular tension are absent. The voidance of urine and the lifting of the right leg is likewise painless during acetonemic vomiting. The blood picture may be an aid for the differential diagnosis, in that leukocytosis is absent in acetonemic vomiting. For the diagnosis of basilar meningitis the development of rigidity of the neck, changes in the pulse and Brudzinski's and

Kernig's signs should be awaited. For the treatment of acetonemic vomiting the author recommends the administration of carbohydrates in the form of sweetened fluids. As soon as the vomiting stops it is advisable to give a paplike diet rich in sugar. If the vomiting and the dehydration are especially severe, dextrose solution should be administered either in the form of enemas or by subcutaneous or intravenous injection.

Perforation of Ulcerated Colon Caused by Contrast Medium.—That roentgenoscopic examination of the intestine with the aid of a contrast medium is not an entirely harmless procedure is proved by Kaulich. He reports the clinical history of a woman, aged 57. An operation revealed that a portion of the barium preparation, which twenty-seven days previously had been administered by mouth, had developed into a fecal concretion of about the size of a fist. It was lodged in the sigmoid flexure and had caused symptoms of intestinal obstruction. When a tumor of the colon was suspected, roentgenoscopic examination was again thought necessary and the barium preparation was introduced through the rectum. During the administration of the barium enema the ulcerated intestinal wall perforated above the fecal concretion, as a result of the increased pressure due to tenesmus. Through the opening of the perforation the barium preparation entered the abdominal cavity. An operation was performed immediately. A preternatural anus was made and the abdomen was irrigated. In order to prevent such accidents the author stresses the following points: 1. It is necessary that the anamnesis and the status of the patient be known before the rectal administration of the contrast medium is begun. 2. In cases of bleeding ulcer of the colon a clyster examination is not advisable. 3. The quantity of the contrast medium should not be more than 1 liter. 4. The filling of the colon should be done from a height of not more than 50 cm. 5. Whenever the patient complains of increasing pains or pressure, the administration of the contrast medium should be discontinued.

Nederlandsch Maandschrift voor Geneeskunde, Leyden

16: *709-782,* 1930

Encephalomeningitis Due to Unknown Cause. C. de Lange.—p. 709.
Skin Tumors and Myeloid Reaction in Blood: Case. J. B. S. Schwab.—p. 719.
*Congenital Stenosis of Digestive Tract. B. E. J. H. Becking.—p. 731.
Rickets and Ergosterol. N. Speelman.—p. 750.

Congenital Stenosis of Digestive Tract. — Becking describes three cases of congenital stenosis of the digestive tract recently observed in infants at the Kinderziekenhuis in Utrecht. In the first infant the physician found in the right abdomen a suspicious resistance and sent the child to Utrecht with the tentative diagnosis "invagination." The peritoneum was opened and the mass of the intestine seemed incoercible. There was fluid in the abdomen and the intestine was exceedingly red. No invagination was found. The swelling was felt at first, but afterward it could not be found. The abdomen was closed. The child died the next morning. The surgeon broke open the sutures and found a large portion of the small intestine in a state of severe hemorrhagic inflammation. Above Bauhin's valve, in the ileum there was a highly stenosed portion, about 2 inches long. At one point, the intestine was almost broken through. The mystery of the swelling in the right abdomen was not solved. The second infant, when 14 days old, became highly constipated and had spells of vomiting. The child died six days after admission to the hospital. Necropsy revealed a moderate dilatation of both ureters and a diverticulum of the duodenum. Not only the stomach but also the first portion of the duodenum were highly inflamed, and where the duodenum became thin there was a sort of valve that made passage of intestinal contents to the stomach easy, whereas passage of food from the stomach to the intestine was difficult. Under certain conditions, food could find its way through, which explains the regular, normal stools. In the third infant, vomiting spells set in after six weeks. Changing the diet frequently, the mother worried along with the child until it was 9 months of age. The child was admitted to a hospital and a roentgenogram revealed a stenosis of the esophagus about 2 cm. above the diaphragm. With an esophagoscope the examiner discovered 20 cm. from the teeth a diverticulum of the esophagus, with an opening the size of the head of a pin. By making a gastric fistula (Witzel method) it became possible to feed the child better. But, at the end of seven weeks, the child had gained only 1,140 Gm. in weight. The hemoglobin content of the blood had advanced from 38 to 51, but he still looked pale and poorly. Five months after the operation the weight had come up from 6,430 Gm. to 8,450 Gm. The child is still living, but it is impossible to give it through the slender tube all the food it needs. The author discusses at length congenital diverticula and those arising post partum.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

74: *3509-3612 (July 12)* 1930

The Power of Recovery. C. de Lange.—p. 3518.
Simple Oxidase Reaction for Blood Preparations. R. Roelofs.—p. 3524.
*Epidemiology of Poliomyelitis in the Netherlands. J. T. Terburgh.—p. 3528.
Poliomyelitis Anterior Acuta. F. S. van Bouwdijk Bastiaanse.—p. 3544.

Epidemiology of Poliomyelitis in the Netherlands.—Terburgh reports the incidence and the mortality of poliomyelitis in the Netherlands during the period 1924-1929. During the first five years the number of cases reported did not exceed 75, but in 1929 it was 507 with a mortality of 15.6 per cent. During the first years after cases of poliomyelitis became notifiable (Aug. 30, 1923), there were no doubt more cases than the statistics show. The number of deaths is evidently more complete than the number of cases. The mortality rate of 15.6 per cent recorded for 1929 is not excessively high—not much higher than the average mortality reported by the health section of the League of Nations (from 12 to 13 per cent).

Finska Läkaresällskapets Handlingar, Helsingfors

72: 511-606 (July) 1930

*Liver Diet and Reticulocyte Reaction in Simple Anemia. J. Wahlberg.—p. 511.
*Coxa Vara and Internal Secretion. E. Nyberg.—p. 537.
*Sarcoma Following Roentgen Treatment of Tuberculosis of Joints. B. Backlund.—p. 554.
Effect of Psychic Condition on Calcium Content of Blood. M. C. *Ehrström.—p. 571.*

Liver Diet and Reticulocyte Reaction in Simple Anemia.—Wahlberg reports nineteen cases of simple anemia. In nine out of fifteen liver therapy was followed by improvement, but in only three out of thirteen cases was the effect superior to that of arsenic and iron, while seven reacted more favorably to arsenic and iron. The comparatively good effect of liver therapy in chronic posthemorrhagic anemias and other chronic anemias with weak regenerative power, noted also by Pal, Vaughan and Gram, point to a stimulation of regeneration in certain cases of simple anemia, although in far less degree than in pernicious anemia. In simple anemias also the reticulocyte reaction is of practical value as the first sign of beginning improvement.

Coxa Vara and Internal Secretion.—Two of Nyberg's cases of coxa vara of adolescence showed no evidence of abnormality of internal secretion as a basis for the bilateral pathologic condition, but the third was apparently a typical instance of adiposogenital dystrophy. Tests of the basal metabolism, calcium content of the blood and renal function gave normal values; a dextrose tolerance test revealed a pathologic blood sugar curve.

Sarcoma Following Roentgen Treatment of Tuberculosis of Joints.—In Backlund's patient with disease of the knee joint, diagnosed as tuberculous, since her eleventh year, intensive irradiation for two years, begun at the age of 34, resulted in considerable improvement for five years, when the symptoms became increasingly aggravated. These were atrophy of the skin and telangiectasis and on the inner side of the knee a softer, fluctuating portion, which was excised. Microscopic examination disclosed recent spongy connective tissue, osteoid tissue, concentrically arranged hyalin formation, and spindle cell sarcoma. Removal of a pea-sized tumor that had developed in the same place ten months later was followed after seven months by a second tumor, necessitating radical intervention. Both were spindle cell sarcomas. After another six months amputation was done, as the whole medial portion of the knee was destroyed by a spindle cell sarcoma. Half a year later there were signs of pulmonary metastases. The case was found to agree with eleven others in the literature in which sarcomatous changes after roentgen treatment are ascribed to roentgen injury, although the tuberculosis cannot be excluded as a contributing factor.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 95, No. 16 CHICAGO, ILLINOIS OCTOBER 18, 1930

THE DIAGNOSIS OF CANCER*

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NEW YORK

The extensive education of the lay public which has been conducted in the past fifteen years by the American Society for the Control of Cancer has created a situation not without interest to the medical profession as a whole. The fact is that while it is perfectly possible to have the lay public absorb a certain amount of information concerning the symptoms of cancer, after such absorption has taken place and the desired reaction occurred the profession is not in a position, speaking generally, to render efficient service to those who apply for it. In other words, the medical profession as a whole is not yet prepared accurately to diagnose the disease which it is called on to treat, at a stage which permits of effective therapeutic attack, nor are all surgeons or radiologists prepared to offer the proper therapy.[1]

This failure is not confined to the internal group of neoplasms in which the diagnosis is in many instances extremely difficult, if not absolutely impossible and for which no effective treatment exists at present, but it concerns tumors of the breast, the cervix, the lower part of the rectum, and the oral cavity, where easy visual and digital access makes the diagnosis of cancer relatively simple and cure possible. In discussing these matters, it is not intended to criticize the practitioner of the small town or rural districts, who often has but little opportunity to observe cancers clinically. He may not see a cancer of the tongue once in two or three years and may therefore not be quite so accurate in his diagnosis as his city colleague who sees more cases; but on the whole, he is often better than they. It is rather the city man who with fair clinical experience still does not know enough to refer for immediate surgical or radiation treatment a hard nodule in the tongue. One of the leading dermatologists in the United States treated a cancer of the tongue for nearly a year with arsphenamine simply because the patient had a four-plus Wassermann reaction. Meantime the nodes had become extensively involved and when finally a diagnosis was made the patient was absolutely beyond hope. And yet no physician in the United States could have had greater experience. He was simply asleep. The late diagnosis of neoplasms of the cervix and the rectum is the common experience of every consultant, and even in the breast only some 50 per cent are operable on hospital admission, though frequently these patients have seen one or more physicians six months or a year previously.

The facts are at present that at least half of the malignant tumors that occur are so inaccessible that an early diagnosis can in no sense be made, and in addition even the accessible tumors are so rarely diagnosed in the early stages that only about 20 per cent of all types of accessible cancer, even in the large cities, are susceptible of operative treatment with probability of cure. A small percentage of the inoperable cases are available for curative radiation therapy, the groups effectively treated by radiation being chiefly cancers of the skin and the uterine cervix.

However, as already said, the educational campaign has been extremely effective in stirring up the population, at least in the larger centers, and as a result surgeons and radiologists are now asked to diagnose and to treat tumors in a stage much earlier than they were seen a few years past. This may be said in full knowledge of the fact that papers have been published arguing that publicity campaigns in certain localities, at least, have had no effect in shortening the period between the discovery of the tumor and the consultation with a physician.[2] One needs only to turn to the papers of Georg Winter of Königsberg, the originator of the idea of popular cancer education, to see that, if teaching is done in the proper way, remarkable benefits can be obtained by such lay instruction.

As a tumor which is easily diagnosticated by the classic textbook symptoms is in most instances already beyond any possibility of permanent relief, and as those in which effective intervention may be expected to offer cure are often in the stage in which the clinical diagnosis cannot be made with certainty, it is evident that the pathologist is assuming a position of importance which he has not held since tumor diagnosis began. Most of the successful operations on cancer are exploratory in principle; that is, a surgeon may not be certain at the time of his operation whether he is dealing with a malignant or a benign growth, or even an inflammatory lesion. The proper thing to do in this situation varies with the site of the growth. If the tumor is in the breast, an exploratory operation and removal of the tumor which can be immediately examined by the pathologist by frozen section will furnish the surgeon the guidance for the necessary extent of the operation. Many women will refuse a mastectomy and will accept the idea of an exploratory operation with frozen section diagnosis of the tumor, followed with either a partial restoration of the gland to normal or a radical mastectomy if the lesion warrants. These patients do not have to be told after they come out of the anesthesia what they have had. Such pathologic control is also important in stemming the present attitude of some surgeons that the breast of any woman over 35 containing a few nodules should be promptly removed in toto. This attitude is in harmony with the old principle, which some can remember from the surgical days of the early nineties, of removing by hysterectomy all of the internal female generative organs for almost any symptom whatever.

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* Read before the Section on Pathology and Physiology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

[1] Ewing, James; Greenough, R. B., and Gerster, J. C. A: The Medical Service Available for Cancer Patients in the United States, J. A. M. A. 93:165-169 (July 20) 1929.

[2] Reimann and Safford: Rep. Internat. Cancer Conference, London, 1928, p. 562.

The procedure in the mouth and tongue is somewhat different. Here it is necessary often on account of the small size of the fragments that can be removed for diagnosis not to waste valuable material in making frozen sections but to take time to embed and properly section the biopsy fragment. This need not take more than three days, and during that time there is but little chance of a metastasis. The diagnosis is then definite; the surgeon can plan his operation at leisure and with full realization of the difficulties which he has to surmount. He will also have the satisfaction of not adding to the collection of tuberculous or syphilitic tongues which adorn the shelves of pathologic laboratories.

Many of the earlier tumors of the gastro-intestinal tract, gallbladder and ovaries are also found in the course of exploratory operations and require microscopic examination to determine their nature.

The question of frozen section diagnosis has been much discussed. Some dogmatic authorities reject the method entirely. Those who have been in the habit of doing these sections for many years will, I think, be prepared to acknowledge that in the vast majority of cases the diagnosis can be made from the frozen section just as well as from the thinnest and most perfectly stained paraffin preparation. In all cases, the diagnosis, whether on frozen or embedded material, rises no higher than the intelligence of the pathologist and the breadth of his experience. On the other hand, the knowledge of tumors has run considerably ahead of the general routine training in pathology, and unforgivable errors in diagnosis are all too frequent, even from the best equipped institutions.

The opportunities for training pathologists are not particularly good at present. Ordinary morphologic pathology is regarded as rather old-fashioned. Many pathologists quite properly prefer to experiment on a few dogs or cats, to see whether they can produce renal, hepatic, gastric or cardiac lesions, and then to study the chemical or pathologic results, than to sit down and make careful morphologic studies of tissues in order that they may help a surgeon save the life of a human being. Pathology today is suffering also from the fact that there is no financial or clinical future for a hospital pathologist. He may work faithfully for a few years, but it is almost mathematically certain that when an appointment is made on the surgical or medical staff of the hospital it will be some one who may have had a wide clinical experience but knows little or no pathology. The surgeon who is appointed is apt to have spent some years in the dissecting room, where his time was largely wasted in learning the names of things he will cut through when he operates instead of studying pathology and bacteriology. The internist will have a vast knowledge of proprietary drugs which benefit his patients but little. If the system could only be introduced in America of appointing no one to a staff position in a hospital who has not had at least one laboratory year in autopsy and microscopic tissue diagnosis, medicine would quickly show a remarkable improvement.

If, then, there is no future for the pathologist in these days of difficult living, why should any one go into pathology? That is the reason why the desks of professors of pathology are cumbered with appeals for pathologists for various hospitals when none are available, and why some small hospitals employ technicians to make their diagnoses with lamentable results. The only solution is to offer clinical advancement to those who desire it. Then the better type of physician would be willing to do pathology for a few years. This is now not always the case. If the pathologist in the future is to make frozen sections and assume responsibility for extensive surgical procedures with a clear conscience, he must be better trained on tumors than he now is. Some half-hearted efforts have been made to remedy the situation by various collections of slides and specimens in Chicago, Philadelphia and elsewhere, but the pathologist who is working in some hospital in a midwestern country town on a salary of $1,000 a year will scarcely be able to go to Chicago or Philadelphia or Boston to study sets of slides. A far more intelligent thing would be to have purchasable for a moderate sum a complete set of slides, both of autopsy and of surgical pathologic lesions, illustrating all the ordinary conditions which are apt to occur, accompanied by detailed histories. The success of Cabot's books has shown the need of something of this sort. If such a book of histories of cancer patients could be accompanied by the slides to illustrate the pathologic anatomy of tumors, the skill of pathologists would, I think, rise with considerable rapidity.

Not only is the pathologist of the future to be called on to say whether a tumor is malignant or benign, he is to be called on to state its degree of malignancy and whether or not it is radiosensitive. Whether he can ever achieve any certainty in all these aspects of prophecy is very questionable. In diagnosis, yes, almost always; in prognosis, not. No one can make a prognosis from a section except in certain well recognized groups. Lymphosarcoma is one, but I have seen slides of growths which were typical lymphosarcomas in cases in which the patient is alive some ten years later, without treatment in one instance; with a very moderate amount of irradiation in another. Though every one knows that in general a lymphosarcoma is a radiosensitive growth, yet the prognosis is almost invariably fatal. The number of cures in anything except the intestinal group is minimal, and these are cured only because they give obstructive symptoms early while the process is local. While the pure lymphosarcomas are rather sensitive to irradiation, their cousins, the reticulum cell sarcomas of the nodes, are as a rule extremely resistant. These tumors coming from the same organ exhibit entirely different biologic qualities which could not have been prognosticated from the slide.

It is always to be remembered that radiation therapy makes an assumption as to the biology of the tumor. When physicians advise such treatment they mean either that the patient is hopeless from a surgical aspect and that therefore from the point of view of palliation radiation may be given, or they mean that the tumor is radiosensitive and therefore can be completely destroyed. No pathologist can tell from a slide the difference between the two except in a very general way. If at one end the lymphosarcoma under discussion is considered and at the other tumors containing osteoid and cartilaginous tissues, the assumption is safe that the latter tumor will resist irradiation. The same assumption can be made if the neoplasm is pigmented. Between these two extremes is a broad class of neoplasms, say the carcinomas of one site such as the lip, tongue or breast, which it is true can be thrown into morphologic groups roughly correlated in their biologic qualities; but to say, as I have been told by a surgeon, that because some pathologist had grouped an epithelioma of the tongue as belonging to group 2, therefore the epithelioma should be curable by irradiation, is nonsense. This particular tumor was recommended for therapy, recurred promptly, and was entirely resistant to radiation—an effective proof of the uselessness of a certain type of grading.

The grading question also is complicated by the fact that it may be valid for surgery and invalid for irradiation, or that one type of carcinoma may have a good prognosis surgically, and be absolutely resistant to irradiation. For, after all, prognosis, as Lee[3] has shown for the breast, depends on many things—the position of the growth, its relations to the blood vessels, its lymphatic connections, its size in some cases, and finally, also, the dimensions of the tumor cells, wholly independent of their growth rate. So is seen the paradox of a huge tumor of the breast with large cells being less malignant clinically than the small cell scirrhous carcinoma in which the nodes are extensively involved before the primary tumor is recognized. The same paradox is seen in the cervix to which Healy[4] has called attention, that the squamous cell tumors which are favorable for surgical operation are the least favorable as regards irradiation. The favorable cases for irradiation are those neoplasms which are atypical, which show marked anaplasia and a tendency to invade the parametria early—in other words, possess the exact qualities that make surgery ineffective. Here again the pathologist bears a heavy burden, for he is asked to decide between surgery and irradiation on the basis of the tumor group. Malignancy, it should be remembered, is a clinical phenomenon, not a morphologic one.

It is evident from what has been said that in the near future both the clinician and the pathologist must be much better trained in the diagnosis of tumors than they are at present. The machinery for such training has not yet been developed. There are few places where the pathologist can obtain a broad fundamental training in tumor diagnosis. Nor can he buy sets of slides such as I have mentioned. He is usually not a welcome guest in the busy laboratories of those other pathologists who have abundant material but are poorly paid and overworked. In addition, he will have no assurance that if he does fit himself he will ever escape from the treadmill of routine laboratory work. There are some men fortunately fitted mentally or financially who are happy to devote their lives to this somewhat thankless task. But until it is recognized that the pathologist knows more about disease than most of the clinicians who outrank him in his hospital, and until advancement to the staff is only through the laboratory, as it is in Germany, there will still be too few pathologists. When there were 165 medical colleges there were just that many professors of pathology, and now the medical schools have fallen to such a point that the supply needed is small.

To turn to the physician: He can be trained only by seeing patients. Cancer patients form only about 3 or 4 per cent of the admissions to a general hospital. Therefore at any one time in such a hospital there are only a few patients with tumors for teaching purposes. A better place is the radiotherapeutic department, but this contains a large number of those who have been operated on and therefore the instructive diagnosis of the early stages cannot be offered. The solution of the problem will be found only when either the community or the medical profession realizes the absolute necessity of concentrating a large number of cancer cases in institutions in order that research and education can go hand in hand with the best therapy. The physician must train himself in the reading of roentgenograms, in the use of the instruments for inspection of the accessible internal regions, such as the eye, the throat and the larynx, and especially in the use of the sigmoidoscope and even the cystoscope. So far appeals for cancer institutes have fallen on rather stony ground, but there is no question that unless the profession takes the step the public will. There are hospitals for women, hospitals for children, hospitals for the mentally diseased, hospitals for patients with eye, ear, nose and throat trouble, yet when anybody suggests a cancer hospital the surgical profession rises *en masse* and says that cancer is best treated in the wards of a general hospital; in other words, that the man who operates on one carcinoma of the rectum a year is superior in skill to the man who may operate on fifty. But the only way to get the fifty is to concentrate the material in one hospital, or in a part of one hospital, and give it to that individual whose interest covers the particular anatomic field mentioned.

The moment such institutions are established throughout the country, as they will be in time, it will be possible for the man who wants to know something of the pathology of tumors to go and see his material in the wards, where the diagnosis can be made clinically, and also to follow the case to the operating room or to the radiotherapeutic department, to see the treatment, study the material obtained both from the operating room and from autopsies, and to learn to do his own frozen sections. He must, as a pathologist, learn to say "I don't know" when called on to make a vital decision which cannot be made from the material under examination; learn, in other words, to be a good pathologist, and therefore an important member of his hospital staff. At the same time the clinician can see in a short time the methods of diagnosis and treatment, and also see autopsies on cancer patients. Both of these men will quickly learn the inadequacy of much cancer treatment, chiefly because it is too late. They may not have the opportunity of preventing the removal of the tonsils for asthma from a small boy whose leg had been amputated for sarcoma some months previous and whose lungs were full of tumor. That does occur, though not often; but they will realize that many of the cases of cancer which are apparently favorable at the time of examination will be found on operation or irradiation to present extensive growths entirely unsuspected. They will learn not to treat a carcinoma of the cervix with large quantities of radium when supraclavicular invasion has already occurred. They will learn that a good surgeon does not operate on a carcinoma of the stomach when a Virchow's node exists above the clavicle, that he does not amputate a leg for sarcoma until the lung and bony system have been shown to be free from metastases, that a competent physician does not treat a child for rheumatism until a roentgenogram has demonstrated the absence of a bone sarcoma, nor administer medicine to cure sciatica in a woman who has had her breast amputated. They will learn the regrettable fact that irradiation sufficient to destroy all the cells of a tumor can rarely be put through the human skin without such damage as is irreparable. They will learn the limitations of the treatment of the epithelial tumors of the face and of the cervix, which are the most favorable fields for irradiation. They will also learn the wide range of palliation which can be accomplished by irradiation methods, either alone or combined with surgery, but they will see that palliation, however valuable, is of but short duration in most instances. In other words, the pathologist and the clinician will learn both the natural history of cancer and its diagnosis, and will realize that at present its treatment, to be effective, must be accomplished at so early a stage that even when the growth is in a favorable site it will often tax the diagnostic ability both of the clinical diagnostician and of the expert with the microscope.

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[3] Lee, B. J., and Stubenbord, J. G.: Clinical Index of Malignancy for Carcinoma of Breast, Surg. Gynec. Obst. **47**: 812-814 (Dec.) 1928.

[4] Healy, W. P., and Cutler, M.: Am. J. Obst. & Gynec. **16**: 15-28 (July) 1928.

It is useless to educate the public unless the profession can meet the demands so stimulated, and the profession cannot do so unless the facilities both for undergraduate and for postgraduate instruction are developed far beyond their present status. Even if this development takes place, it will be useless unless the profession sees its opportunity and uses it to the full. Then and only then will there be any real control of the cancer situation.

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THE RESULTS OF MEDICAL TREATMENT OF PEPTIC ULCER *

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Prior to 1915, when Sippy[1] published his first paper on the medical treatment of ulcer, the forms of treatment in general use were chiefly of the Lenhartz type, a therapy based on bland foods, bed rest, hot fomentations and minimal doses of alkalis. Sippy became convinced that greater efficiency in treatment could be achieved by clearly recognizing the important influence of the digestive action of gastric juice on the unprotected raw surface of a gastric or duodenal ulcer. He believed that the peculiar tendency to great chronicity displayed by these lesions was due to the chemical action on the exposed surface of the ulcer of the powerful proteolytic gastric juice and advanced the theory that the healing of peptic ulcer could best be achieved by elimination of this deleterious chemical digestive action, an effect to be secured by complete neutralization of free hydrochloric acid in the gastric content from breakfast until bedtime, with special emphasis on the control of any existing hypersecretion during the night hours.

The application of this theory resulted in the hourly feeding schedule and the intensive use of alkalis of various types.

In the years that have elapsed, during which the general value of this manner of treatment has gained widespread recognition, two facts have emerged from continuous clinical experience with ulcer-bearing individuals. The first to be noted is the comforting certainty that by far the greater proportion of gastric and duodenal ulcers can be healed by proper medical measures. The second fact—less pleasant to dwell on but of vital importance to every ulcer-bearing person—is that these lesions tend to recur and do recur in a large percentage of patients, either at the original site or, as frequently happens, in a different area of the stomach or duodenum. These frequent recurrences have not only emphasized our essential lack of basic knowledge regarding the cause of peptic ulcer but have made clear the probability that some unknown constitutional factor plays an important rôle in the etiology. The time may soon arrive when we shall clearly recognize that a gastric or duodenal ulcer is the very troublesome local manifestation of a deeply seated disorder. More detailed questioning regarding family histories reveals a remarkable familial incidence of ulcer, suggestive evidence in support of such a constitutional factor.[2]

To determine the ultimate effectiveness of the Sippy type of treatment for peptic ulcer, a survey has been made of all cases treated by Dr. Sippy and myself at the Presbyterian Hospital from 1912 to 1927 inclusive. The report also includes 167 cases from the services of Dr. L. C. Gatewood and Dr. D. P. Abbott, former associates. In this study, no selection of cases was made. Great care was taken, however, to exclude cases, especially from the earlier years, in which the diagnosis was based on inconclusive evidence.

During March and April of this year letters and questionnaires were addressed to 1,900 patients, and more than 1,200 replies were received. The purpose of this survey is to report the present status of this group of ulcer patients regarding whose fate we have recorded information. The series I am reporting comprises a total of 1,224 cases. Each case history was carefully abstracted either by myself or by my two associates, and it seems desirable to report certain data bearing on the clinical manifestations of ulcer as revealed by this study, as the series constitutes a relatively well studied group, particular care having been given through the years to the writing of complete case histories.

Incidence.—As to sex, 917 (75 per cent) were men and 307 (25 per cent) were women.

Symptomatology.—The average age at the reported onset of symptoms was 35 years, but seemingly no age is exempt, chronic ulcer with marked deformity of the duodenal cap and hemorrhage having been observed in a child of 5 years.

The average time of the first appearance of symptoms before coming under our observation was no less than seven and one-half years. This figure is interesting as indicating the marked degree of chronicity of the ulcers dealt with in this series.

Few chronic ulcers exist without causing some discomfort or pain. Of these 1,224 patients, 49 per cent described their subjective sensation as discomfort or distress and 51 per cent as actual pain. A typical time relationship of pain or distress to food taking is recorded in 1,143 of these histories. The distress appeared from one to three hours after eating in 232, or 20 per cent; from two to three hours after eating in 541, or 48 per cent, and from three to four hours after eating in 370, or 32 per cent.

These figures should set at rest all question as to the consistency of the pain or distress symptom picture produced by peptic ulcer. The pain or distress of uncomplicated ulcer is directly related to the acid content of the stomach. This fact has long been of primary value in the bedside diagnosis of ulcer and has been experimentally verified by Palmer.[3]

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* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[1] Sippy, B. W.: Gastric and Duodenal Ulcer: Medical Cure by an Efficient Removal of Gastric Juice Corrosion, J. A. M. A. **64**: 1625 (May 15) 1915.

[2] Hurst, A. F.: The Constitutional Factor in Disease, Brit. M. J. **1**: 823 (May 7) 1927. Adler, Erich: The Hereditary Occurrence of Gastric and Duodenal Ulcer, Arch. f. Verdauungskr. **37**: 393, 1926.

A description of the type of discomfort or pain is found in 720 cases.

Where recorded, there was invariable relief by food taking and by the use of adequate amounts of alkaline substances.

Ulcer pain is with few exceptions sharply localized to a definite and small area in the epigastrium. Exceedingly few patients report distress or pain originating below the level of the umbilicus, nor is the radiation of pain very common, as shown by table 2.

Table 1.—*Type of Distress or Pain Described in Seven Hundred and Twenty Cases of Peptic Ulcer*

Gnawing	30 per cent
Burning	30 per cent
Fulness or pressure	16 per cent
Aching	15 per cent
Cramplike, sharp or cutting	8 per cent
Boring	1 per cent

Pain awakening the patient from sleep during the night hours occurred in no less than 425 cases (34 per cent), striking evidence of the great frequency of delayed emptying time and the frequently associated continued gastric juice secretion.

Vomiting.—Spontaneous (not induced) vomiting occurred as part of the clinical picture in 17 per cent of these patients.

Hemorrhage.—Massive hemorrhage occurred prior to admission to the medical services in 19 per cent of cases. Replies to questionnaires show that subsequent to discharge from the medical services hemorrhage occurred in 6 per cent, making an impressive total of 296, or 24 per cent, of these patients who at some time during the course of illness had gross hemorrhage from ulcer.

Perforation.—Perforation occurred at some time during the life history of these patients in 43 cases (4 per cent).

Physical Signs.—Visible gastric peristalsis of pathologic grade was recorded in 185 charts (15 per cent). The records regarding the presence or absence of a circumscribed point of definite local tenderness on palpation are incomplete, but I am increasingly impressed with the significance of this finding as evidence of active ulcer, especially when present in the area most accessible to palpation, namely, the duodenum.

Table 2.—*Radiation of Pain in Peptic Ulcer*

	Number of Cases	Per Cent
To back	78	6.0
To right hypochondrium	7	0.5
To left hypochondrium	6	0.5
To lumbar region	6	0.5
Upward into thorax	4	Less than 0.5
To right lower quadrant	3	Less than 0.5
To left lower quadrant	3	Less than 0.5

Laboratory Observations.—Interesting data are available as to the hydrochloric acid values. The figures presented in table 3 were obtained by routine Ewald test breakfasts and represent the titration figures in terms of tenth-normal sodium hydroxide.

Thus it is seen that less than 3 per cent had an Ewald free hydrochloric acid acidity below 20. In 22 per cent the acid values were between 20 and 40, and 75 per cent of these cases presented acid values above 40, confirming the general impression as to the prevalence of a high acidity in chronic ulcer.

Focal Infection.—Recorded evidence was found in 254 patients, 158 having periapical dental caries, 83 diseased tonsils, and 13 sinus or other infections. A serious effort was constantly made to remove potential sources of general infection.

Roentgen Evidence.—Data are available in 1,036 cases. Roentgen-ray reports are missing from the records in 188 cases because of an imperfect recording mechanism in the earlier years. This group of patients was scrutinized with great care to exclude any doubtful cases. Some positive evidence of ulcer (chiefly history of hemorrhage) was present in 85 of these cases and 17 additional (a total of 102) were proved ulcers at subsequent operation or postmortem. Normal or inconclusive observations were reported in 24 cases.

Duodenal ulcer was diagnosed by roentgen-ray in 923 cases and gastric ulcer in 77 cases, and both gastric and duodenal ulcer in 12 cases.

This relatively low percentage of gastric ulcers is at variance with pathologic reports and I believe is to be explained by a faulty roentgen-ray technic during several of the earlier years covered by this report. This I suspect from the results of the much more precise roentgen-ray methods of recent years. Also, many duodenal ulcers escaped fluoroscopic diagnosis in the earlier years because of inability to visualize the common "fleck" type of lesion on the posterior wall, so often present without recognizable deformity of the silhouette of the duodenal cap.

Table 3.—*Gastric Acidity in 1,224 Cases of Peptic Ulcer*

Number of cases with free hydrochloric acid between:	
1 and 20	33
20 and 30	87
30 and 40	180
40 and 50	238
50 and 60	250
60 and 70	210
70 and 80	120
80 and higher	75
No record	33

RESULTS OF TREATMENT

Preliminary to a discussion of the end-results of treatment, it should again be made clear that this series includes cases in which the patients were admitted to the medical services during the fifteen year period from 1912 to 1927, and no patients entering the hospital later than 1927 have been included, hence a period of not less than two and one-half years has elapsed since treatment of the most recent cases.

In applying the term "cured" to a certain group of cases it must be understood that the word is used to describe the present status of the patient, with complete understanding of the fact that during the next five years probably more than a few individuals in the present cured group will again be suffering from peptic ulcer.

During the past two decades discussion of the treatment of ulcer has too often been chiefly a somewhat acrimonious debate between the physician and the surgeon as to whether ulcer should be considered a medical or a surgical disease. Happily that time is now past and time need no longer be wasted in a futile statistical race, for both the surgeon and the internist have acquired during this period a breadth of experience that has defined with reasonable clarity the manner in which each may with good effect function in securing to the ulcer sufferer health or a measurable degree of relief. There are few indeed who would not now agree that ulcer in its earlier course can be healed by proper medical measures. One cannot escape the thought that, if all patients were really well cared for during the first few weeks or months of the disease, with proper advice as to a subsequent regimen designed to lessen the likelihood of recurrence, the mortality, economic loss and suffering from this malady would be greatly reduced.

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[3] Palmer, W. L.: The Mechanism of Pain in Gastric and Duodenal Ulcer, Arch. Int. Med. 38: 694 (Dec.) 1926.

One of the most disturbing facts discovered in our survey is that the first manifestations of ulcer so far as could be determined by careful history taking occurred on an average of seven and one-half years before the patient came under our observation. Many of these patients, had they consulted a physician early and had the lesion been accurately diagnosed and well treated at an early stage, would not have developed the sequence of pathologic changes such as scar tissue obstruction and extensive callous formation which later placed so many of them in the category of surgical cases.

Another equally disturbing fact emerges from this record, namely, the large number of cases discharged from our medical services to continue medical treatment under the great handicap of some degree of cicatricial pyloric obstruction (this term being used in the broad sense of obstruction at or near the pylorus). These patients left the hospital with the same complete relief of symptoms as was true in the simple, nonobstructive group, and with the same instructions with the exception of two important additional ones; namely, to empty the stomach with the tube at bedtime and to report in from three to six months' time for determination of the then existing degree of obstruction, with gastro-enterostomy to be advised if the obstructive factor had not then disappeared from the picture.

Table 4.—*Results of Medical Treatment of Peptic Ulcer*

Total number of cases		1,224	
Average duration of symptoms prior to coming under our observation		7½ years	
Number of cases treated wholly medically at the Presbyterian Hospital		1,130	
Number of cases referred from the medical services to surgery		94	
Of the 1,130 cases treated wholly medically, the present status as determined by letters, questionnaires and personal interviews is as follows:			
Good medical result	*Cured*	559 (49 5%)	66%
	Greatly improved	*189 (16.7%)*	
Fair medical result, improved		111 (10%)	
Poor medical result	Not improved	31	*223 (20%)*
	Subsequently operated on for ulcer elsewhere	155	
	Died from ulcer or its effects	37	
Died (*a*) from causes unknown		45	
(*b*) *from causes other than stomach lesions, (chiefly cardiovascular renal)*		54	
(*c*) from carcinoma of stomach		10	
Total		109	

Average present age in this group of 109 cases had patients lived to the present time would have been between 65 and 70 years.

What actually happened in the great proportion of these obstructive cases was this: As time passed, the patient, comfortable, at his usual vocation, eating most foods, and with no trace of dyspepsia, gradually relaxed or abandoned the measures advised (especially the vitally important bedtime aspiration), in too many instances failed to report for reexamination, and several months or years later suffered a recurrence of pain or hemorrhage. Another group included in the total of our poor results is that in which surgery was advised before the patient left the medical service but was refused.

Too much stress cannot be placed on the importance of the bedside recognition of an existing pyloric obstruction. To this end the seven hour motor test meal and cautious inflation of the stomach to render visible the vigorous peristaltic waves of an hypertrophied gastric muscle wall are valued aids. Once recognized as a complicating factor, pyloric obstruction not only immediately demands special medical measures designed to control continued night secretion and insure an empty stomach during the night hours but with equal insistence labels the lesion as potentially a surgical ulcer. In many cases the existing pyloric obstruction is due to muscle spasm and inflammatory swelling, readily relievable by two or three weeks of good medical management. Whatever degree of pyloric obstruction remains after such a brief course of treatment is likely to be due to scar tissue and, if the lumen of the pylorus or duodenum is narrowed by scar tissue to a degree that prevents the stomach from emptying in approximately normal time, the patient should be referred to the surgeon.

It is my belief that the 20 per cent of poor results recorded in this survey represents approximately the proportion of cases of gastric and duodenal ulcer requiring surgical care.

It is interesting to note the evidence indicating the large group of obstructive cases in this series and to contrast these figures with the relatively small number referred by the medical services to surgery between 1912 and 1927. No less than 34 per cent (425 patients) gave a history of pain during the midnight hours. One hundred and eighty-five histories contain a record of visible peristaltic waves. Ninety-four patients were referred to the surgeon. I believe that approximately three times this number of our patients should have had the benefit of skilled surgery. A corollary to this statement, however, is my equally decided opinion that good cooperation between the internist and the surgeon is of utmost value in securing good results. The patients should be placed in the surgical category only after careful clinical study and rarely except after a period of preliminary medical treatment. Gatewood[4] recently reported to the American Surgical Association in Baltimore a mortality of 1.6 per cent in the gastro-enterostomies done at the Presbyterian Hospital over a period of ten years, stressing the important influence of careful preliminary medical treatment prior to and subsequent to operation in obtaining this low mortality rate.

Many authorities still adhere to the belief that gastric ulcers should invariably be excised because of the existing impression that these lesions frequently become cancerous. The series of gastric ulcers in which I was able to secure replies is relatively small, many of my cases in this group having been in the floating population class; but it is of interest to note that 41 per cent of the 77 patients report a definite cure; 20 per cent were greatly improved; 12 per cent report improvement, and 19 per cent were operated on either under my direction or subsequently, and only 9 patients are dead. The cause of death of eight of these patients is known, only one having died from carcinoma of the stomach, and even in this case postmortem examination disclosed the scar of a healed ulcer in a region on the lesser curvature wholly apart from the carcinoma.

Unquestionably, old callous saddle-back ulcers of the lesser curvature are difficult and often impossible to heal. These should be excised when possible. I firmly believe, however, that clinical experience in future years will free gastric ulcer from the malignant suspicion in which it is now held by many medical men and that the mortality figures will show a low incidence of carcinoma in gastric ulcer patients. Certainly we have found most gastric ulcers readily amenable to medical treatment.

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[4] Gatewood, to be published.

It is known that even under the most favorable conditions the time required for the healing of peptic ulcers varies within wide limits, many healing readily within a few weeks while others with a broad, thickened callous base adherent to the liver or the pancreas and with scant blood supply require several months for complete cicatrization. The general tendency is toward briefer periods of hospitalization for ulcer patients, and one of the great handicaps in directing the after-treatment would seem to be the difficulty in inducing patients to carry on a rigid regimen during months of what to the patient seems an excellent state of health; for so long as he carries out instructions he is, with very few exceptions, perfectly comfortable. In many of the "poor result" cases in this series the replies to questionnaire show that the patient had abandoned all but very sketchy measures of treatment soon after leaving the hospital, content with the temporary benefit secured. To meet this phase of the problem a special outpatient ulcer clinic is being established in charge of an assistant who will endeavor to maintain contact with each patient at stated intervals for at least a year after discharge from the hospital, checking up the details of treatment and the progress of the cases in much the same manner as is done in well organized diabetic clinics. This may be done without cost to the patient and is essentially an educational part of the treatment of ulcer. The tuberculous, the nephritic and the diabetic patients are carefully instructed as to diet, sleep and exercise, as to the use of alcohol and tobacco, and as to the danger of harboring foci of infection. The individual who for years has been the victim of recurrent peptic ulcer would seem to be in equal need of similar personal instruction and supervision.

My purpose in undertaking the survey was to secure information regarding a large group of medically treated cases of gastric and duodenal ulcers covering a long period of years with a view of attempting to crystallize the thought of the profession as to the general effectiveness of the medical treatment of ulcer, treatment of the type based on the conception that an effective control of the free hydrochloric acid in the gastric content is the most important factor in securing healing of peptic ulcer.

CONCLUSION

The present status of 1,224 cases admitted to the medical services of the Presbyterian Hospital between 1912 and 1927 is reported.

Of the 1,130 cases treated medically (94 having been referred to surgery), 49.5 per cent are reported cured, 16.7 per cent satisfactorily improved, a total of 66 per cent of cases in which a good medical result was obtained. An additional 10 per cent report moderate improvement. In 20 per cent, medical measures failed.

Approximately 20 per cent of patients with gastric and duodenal ulcers now being admitted to hospitals require surgical care.

Because of the lack of basic knowledge regarding the etiology of ulcer, the inability of physicians to insure an ulcer-bearing individual against recurrence constitutes the most serious problem to be faced.

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ABSTRACT OF DISCUSSION

Dr. George B. Eusterman, Rochester, Minn.: While some authorities are antagonistic to the neutralization theory and mode of treatment instituted by the late Dr. Sippy, one feels that restoration of normal gastric motility and adequate control of gastric acidity promote healing in suitable cases with the greatest certainty. Such neutralization or adequate reduction by permanent mechanical methods, plus removal of the lesion when feasible, is also the goal of the surgeon. There is ample evidence to show that, in the absence of cicatricial stenosis, adequate control of the morbid secretory state restores normal motor function, and the latter, in turn, exerts a favorable influence on the former. Dr. Brown's report of 49.5 per cent cures, while it may be somewhat of a disappointment to the internist, is commendable. The term "cure" is comprehensive and when such a state is achieved, it in many instances implies not only permanent control of the local factor but certain contributing ones as well, such as unhygienic habits of various kinds, focal infection, the nervous, emotional and physical stress incident to an acquisitive social state, and even the handicap of hereditary or constitutional predisposition. Statistics on cure by purely medical measures, after a five year period of observation, show even a lower percentage according to Nielsen, Crohn, Greenough and Joslin, averaging about 27 per cent. Dr. Brown's more favorable showing can be explained by the more routine intensive and protracted treatment of patients and the fact that a certain percentage of his cases have been observed for less than the five-year period. I have reason to believe that his earlier cases did not have competent roentgenologic verification and observation. The average duration of symptoms in my ulcer-bearing patients is nine and one-half years, and the average age is 45 years. In less than one third of these had a previous diagnosis of ulcer been made, and in only 10 per cent was satisfactory antecedent treatment instituted. I will comment on that group of duodenal ulcer-bearing patients, often with lesions of long standing, who present a persistent mild clinical course without the development of serious complications, and many of whom come under observation for reasons other than digestive disorders. The amenability of these individuals to ambulant treatment, even when not intensive, is shown in the replies to a recent questionnaire or the results of personal reexamination. In 520 of such individuals who have come under my observation from 1915 to 1926, 35 per cent considered themselves cured and 43 per cent as definitely improved and suffered no loss of time from work. In the remainder, death from other causes, persistence of symptoms, acute perforation, severe hemorrhage or necessity for surgical intervention characterized their clinical course. Early gastric and duodenal lesions in young persons usually heal readily under treatment, with good cooperation. Undoubtedly, the ultimate welfare of the patient with an active, long-standing or complicated gastroduodenal ulcer is best conserved by competent surgical intervention.

Dr. H. L. Bockus, Philadelphia: I was pleased to hear Dr. Brown mention the importance of local tenderness in active ulcer. More than half of my cases have tenderness localized to a small area in the epigastrium, which gradually disappears as the ulcer becomes quiescent. It usually survives the subjective pain by several days or weeks. I do not increase the diet as long as tenderness persists. Dr. Brown reports 75 per cent of cases with an acidity above 40. It is well known that the acid values in gastric ulcer are much lower than in duodenal ulcer. In my clinic the acidity, as determined by the fractional method, has recently been reviewed in 200 cases of duodenal ulcer. Fifty-seven per cent had a fasting hyperacidity (hydrochloric acid above 20) and 84 per cent a postprandial hyperchlorhydria (hydrochloric acid above 50). The finding of a subnormal acidity by the fractional method should cause some hesitation in making a diagnosis of duodenal ulcer. Only 8 per cent of the cases were hypo-acid. In seventy-one I checked the acidity at a period varying from six months to six years following the institution of medical treatment. The acidity at the second test was higher in forty-eight, the same in twenty, and reduced in only 32 per cent. Relapses were not more frequent in cases showing extreme hyperacidity at the time of the original examination than in patients with a lesser degree of acidity. However, if reexamination showed a tendency for the acidity to mount even higher, a relapse was often imminent or had actually occurred. I concur with Dr. Brown's opinion that better results would be obtained from medical management if it was instituted more promptly after the onset of symptoms. It has been my policy to advise surgery if after four weeks considerable retention persists, as determined by the fractional analysis or roentgenologic study. Some degree of fibrosis is invariably found in these cases at operation. The necessity for a period of medical management preliminary to surgery, time being allowed for the inflammatory swelling to subside, should be more generally recognized and practiced. It is comforting to hear that not one of the seventy-seven cases of gastric ulcer has become malignant. My experience has been the same. In order to reduce the probability of recurrence in ulcer-bearing patients with seasonal incidence of attacks, I have adopted the following plan: One month previous to the time of expected relapse, the patient's diet is again restricted. He is instructed to take additional rest and to avoid undue fatigue and excesses of all kinds, particularly nervous strain. Restrictions are continued for two months.

Dr. G. Gill Richards, Salt Lake City: In 1917, a summary of 100 cases of peptic ulcer at the Salt Lake Clinic revealed that 75 per cent of them had been treated by surgery. As our experience grew the number of cases referred for surgery lessened. By 1926, only 30 per cent of the patients were operated on. From 1926 to 1930 only 12 per cent of 278 patients with duodenal ulcers were referred for surgery. It is the other group of peptic ulcers in which I have been especially interested the last four years. Up to 1926 my associates and myself had been so thoroughly converted to the teaching of the frequency of development of a malignant condition on gastric ulcers that it was our custom to recommend surgery in all cases of gastric ulcer. Early in 1926 I became so upset at the loss of two of these patients from postoperative pneumonia that I began to fear pneumonia more than carcinoma. With the greatest of care we selected a small group for medical probation. We insisted on a reexamination every two weeks at the beginning, and every two months during the first year. To our amazement, the small ulcer niche had disappeared and the larger ones were much smaller, even at the end of the second or third week. Of the forty-eight patients with gastric ulcer whom we have had in the last four years only fifteen have been operated on. A failure to obtain complete healing or a return of the ulcer while on careful diet seems sufficient to recommend surgery. In this group recurrence has been less frequent than in any similar series of duodenal ulcer, and the ulcer heals with no visible deformity. Up to the present time none have developed any symptoms or signs which lead us to suspect a malignant condition, and only one of those treated medically has died from the ulcer. At autopsy there was no sign found of any malignant growth.

Dr. Ralph C. Brown, Chicago: The chief purpose I had in mind in making this survey was to ascertain the precise facts regarding the fate of ulcer patients, having in mind the statement made by Dr. Sippy that 85 per cent of them could be cured, as well as his strong feeling against the ill considered and indiscriminate reference of cases to surgery. I was also anxious to attempt by means of these statistics to influence the thought of the profession as to the general effectiveness of the type of medical treatment which is based on the conception that an effective control of free hydrochloric acid in the gastric content is the most important factor, although by no means the only factor, in securing healing of peptic ulcer. I have learned that this type of medical management is based on a valid principle. Curiously enough, this knowledge has come not alone from observation of the cases that could readily be cured by Sippy treatment but possibly even more definitely from experience with cases that could not be cured medically, nearly always cases in which for one reason or another it was not possible to achieve complete neutralization of free hydrochloric acid. This recalls the case Dr. Eusterman cited of the patient who recovered without alkalis on a diet limited to bread and milk. There are patients who will not do well on Sippy treatment in the sense that they are unable to tolerate the intensive use of various alkalis, and it may be of interest to know that ulcers are being cured without alkalis in certain individuals of this type by giving milk and cream at very frequent intervals, using milk as a neutralizing agent. It is known that milk will neutralize the free hydrochloric acid in approximately an equal volume of gastric juice. There are certain other cases (not common) in which there is stimulation of a continued night secretion by the administration of alkalis. In such susceptible individuals it is impossible to heal a very large lesser curvature gastric ulcer by routine measures of medical management and I have recourse either to a prolonged course of duodenal tube feeding or, still better, to the use of two small tubes, one in the duodenum for feeding and the other in the stomach. By means of this shorter tube the stomach may be kept free from accumulation of acid gastric juice by very frequent aspirations. I know of few conditions in medicine offering as much opportunity for individualization in treatment as is possible in the application of the Sippy principle to the treatment of peptic ulcer, with all the idiosyncrasies which various ulcer patients exhibit.

MENSTRUAL DISORDERS IN ADOLESCENT GIRLS

THEIR SIGNIFICANCE AND TREATMENT *

CHARLES H. LAWRENCE, Jr., M.D.
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A study of sterility now in progress at the Evans Memorial[1] shows that, in fifty consecutive cases, 54 per cent of the women had definite pelvic hypoplasia as one of the more important factors in the sterility. Of these, 66 per cent gave convincing evidence of endocrinopathy still existing, and an additional 14 per cent gave histories which were strongly suggestive of adolescent disturbances of endocrine function which had spontaneously normalized in early adult life, leaving as residua various degrees of permanent incomplete development of the reproductive organs.

Because of this large incidence of pelvic hypoplasia in sterile women, and its incurability when detected after the growth period is over, it seemed worth while to study adolescent girls with symptoms suggestive of imperfect development of the reproductive organs, in order to determine the cause, the nature and, if possible, the effective treatment of that condition, so that it might be applied before normal development became an impossibility.

To this end, 100 women with delayed menarche or delayed or scanty periods were studied to determine the presence or absence of pelvic hypoplasia and the systemic disturbances associated with it. Fifty of the patients were sterile married women and fifty were adolescent girls. In the former, the presence of ill developed reproductive organs was determined by vaginal pelvic examination and its extent at least approximately measured by calculating the uterine index by Meaker's[2] method. In the latter group, vaginal examination and determination of uterine index were not often practicable, and the condition of the pelvic organs was ascertained by rectal examination. Although this gives less certain results it is sufficient to rule out pathologic conditions of the pelvis, and the degree of hypoplasia is of less importance in the

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* From the Evans Memorial.

* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

[1] Meaker, S. R.: A Working Classification of the Causes of Sterility, J. A. M. A. **90:** 111-113 (Jan. 14) 1928.

[2] Meaker, S. R.: Boston M. & S. J. **196:** 615 (April 14) 1927.

adolescent group since the chance of normal growth still exists. The age of onset and the character of the menstrual flow could be obtained with equal accuracy in the two groups. Rubin[3] has shown, in a recent study of sterile women, that women who menstruate normally have at least a twelve times better chance of pregnancy than those whose menses are habitually delayed or scanty. These criteria, therefore, were selected for examination in this study.

There is still lack of complete agreement concerning the latter limit of normal menarche, but the consensus seems to place it during the fourteenth year. Engleman[4] analyzed more than 10,000 case histories in the United States and Canada and found the average age of the menarche to be 13.9 years. An analysis of 500 apparently normal women at the Evans Memorial shows that about 80 per cent have begun to menstruate before their fourteenth birthdays. One half in the series have borne children; one half were unmarried. For the purpose of this paper, therefore, the fourteenth birthday was selected as marking the latter limit of strictly normal menarche, although from a practical point of view its delay for another twelve months cannot be said to be proof of significant retardation.

The normal interval between menstrual periods is generally regarded as twenty-eight days and was so accepted in this analysis, though a few days' variation, unaccompanied by other abnormal characteristics, was not interpreted as abnormal.

The duration of the normal menstrual flow was set at from four to six days in this study, though Novak[5] sets the limits at from three to five days, and other authors do not regard seven days as unduly long. Variations of a day or two were not interpreted as abnormal in the series here reported.

Table 1.—*Endocrine Malfunction in Connection with Pelvic Hypoplasia and Delayed Menarche*

	Fifty Sterile Adults, per Cent	Fifty Adolescents with Abnormal Menstrual Cycles, per Cent
A. Pelvic hypoplasia demonstrated............	54*	68†
Existing endocrine malfunction present.....	66	92
Previous endocrine malfunction evident....	14	0
Total association demonstrated............	80	92
Nonendocrine systemic disturbances present	10	5.2
B. Delayed menarche	34*	32*
Existing endocrine malfunction present.....	22	28
Previous endocrine malfunction evident.....	8	0
Total association demonstrated............	30	28
Nonendocrine systemic disturbances present	4	4

* Of total number in series.
† Of thirty-four examined by rectum.

In deciding whether or not the amount of flow was normal in any patient, her own statement was accepted for want of a better criterion, and the amount is described as normal, profuse or scanty according to the patient's statement.

The diagnosis of the endocrine disorders associated with the menstrual disturbances was made on the history and physical examination supplemented by a metabolic study including the usual laboratory examinations. The necessity for so complete a study in differentiating endocrine disorders from one another and from nonendocrine conditions simulating them has been so emphasized elsewhere by Rowe and myself[6] that comment on the tests selected is unnecessary here.

The results of the study are reported in table 1. The observations are significant for two reasons. First, they show a high incidence of disturbed endocrine function associated with pelvic hypoplasia, delayed menarche, oligomenorrhea and hypomenorrhea. Second, the association is significantly similar in the adult and in the adolescent group, the differences probably being due to the fact that a certain number of adolescent endocrine disturbances have spontaneously and entirely disappeared by the time the age of marriage is reached. A comparison of the figures, however, indicates that the odds are strongly against such an outcome, and that the adolescent girl with delayed menarche and with infrequent, irregular or scanty periods is likely to be of low fertility when growth has ceased, since the pelvic hypoplasia will then be permanent, whether the associated endocrine disturbance persists or not. The chance of cure lies in identifying and removing or compensating for the underlying cause while growth and developing are still possible.

Table 2.—*Endocrine Malfunction in Connection with Disturbed Menstrual Periodicity and Abnormal Duration of Flow*

	Fifty Sterile Adults, per Cent	Fifty Adolescents with Abnormal Menstrual Cycles, per Cent
C. Intermenstrual interval prolonged.........	26*	40*
Intermenstrual interval curtailed...........	8*	20*
Intermenstrual interval irregular...........	2*	6*
Total with disturbed menstrual periodicity	36*	66*
Existing endocrine malfunction present....	76	82
Nonendocrine systemic disturbance present	23	17
D. Duration of flow prolonged.................	0	14*
Duration of flow curtailed....................	20*	26*
Total with abnormal duration of flow.....	20*	40*
Existing endocrine malfunction present....	76	82
Nonendocrine systemic disturbance present	23	17

* Of total number in series.

In the past, attempts have been made to meet this need by administering some one of the various ovarian extracts that are available. With rare exceptions, the results of such treatment have been nil, and the blame for failure has by unanimous consent been laid on the quality of the extract administered rather than on the impropriety of administering ovarian extract at all.

An analysis of the results in this study, together with other recent evidence, offers another explanation for the failure of ovarian extract to be effective in delayed menarche or oligomenorrhea. Table 2 gives the distribution of the systemic disturbances associated with those symptoms in the group studied. From it, it appears that the largest single factor found associated with disturbed menstrual cycles was insufficiency of pituitary function, and that primary insufficiency of the ovarian hormones not due to ablation of or pathologic changes in the glands is a comparatively rare condition.

Such a conclusion constitutes a radical departure from generally accepted theory. It has, however, the support of the more recent knowledge concerning the rôles played by the ovary and pituitary in the control of menstruation, ovulation and pregnancy.[7] These newer ideas have been recently reviewed by Novak[5] and by Johnstone.[7] Novak says: "The most important recent contribution to sex physiology, and the one which promises most in its future practical applications, is the discovery that the anterior pituitary constitutes the 'motor' of the ovary."

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[3] Rubin, I. C.: Am. J. Obst & Gynec **18:** 603 (Nov.) 1929.

[4] Engleman, in Kelly: Gynaecology, New York, D. Appleton & Co., 1928.

[5] Novak, Emil: Recent Advances in the Physiology of Menstruation, J. A. M. A. **94:** 833 (March 22) 1930.

[6] Rowe, H. W., and Lawrence, C. H.: Endocrinology **12:** 245 (May-June) 1928; **12:** 377 (July-Aug.) 1928; **12:** 591 (Sept.-Oct.) 1928.

[7] Smith, R. F., and Engle, E. T.: Am. J. Anat. **40:** 159 (Nov.) 1927. Corner, G. W., and Allen, W. M.: Am. J. Physiol. **88:** 326 (March) 1929. Johnstone, R. W.: Am. J. Obst. & Gynec. **19:** 167 (Feb.) 1930. Benedict, E. B.; Putnam, T. J., and Teel, H. M.: Am. J. M. Sc. **179:** 489 (April) 1930.

In the light of this and similar statements and of the almost complete clinical failure of even the follicular hormone to correct disturbances of the menstrual cycle, the observations here presented assume a logical relation to clinical experience. They explain the failure of ovarian extracts and indicate that we should abandon both the attitude of optimistic expectancy concerning delayed menarche and oligomenorrhea in the adolescent girl, and the routine use of ovarian extracts in their treatment. They suggest, for the material is too scanty to do more than that, that disturbed pituitary function is the most common single cause of those symptoms, and they should make it clear that the diversity of possible causes necessitates an adequate study of the patient before any treatment is inaugurated. Not all patients with abnormal menstrual cycles have disturbed endocrine function, even though their basal metabolic rates are below normal. An inadequate nitrogen intake, not uncommon in these days of protephobia, will reduce the basal metabolic level to abnormally low values. A single basal metabolism estimation, even when it yields abnormally low results, is not adequate evidence of the existence of thyroid failure or, indeed, of any other endocrine inadequacy. The differential diagnosis of the systemic disturbance can be reached only by a group of tests which give different results according to the situation existing. In the series here reported, for example, basal rates between minus 10 per cent and minus 20 per cent were found in thyroid insufficiency, pituitary insufficiency, ovarian insufficiency, and in patients with negative nitrogen balance, and the identification of the focus at fault could be reached only by interpreting the metabolic rate in the light of all the other observations. This method gives patterns that we have found characteristic in more than 5,000 patients studied at the Evans Memorial.[6]

TABLE 3.—*Endocrine and Nonendocrine Conditions Affecting Abnormal Menstrual Cycles*

	Fifty Sterile Adults, per Cent	Fifty Adolescents with Abnormal Menstrual Cycles, per Cent
Thyrotoxicosis	2	2
Thyroid insufficiency	10	20
Pituitary insufficiency	34	42
Primary ovarian insufficiency	12	10
Due to present pathologic condition	4	4
Due to surgical ablation	4	0
Due to functional insufficiency	4	6
Nonendocrine conditions	42	26
Anemia	4	6
Chronic tonsillar infection	12	16
Chronic tonsillar and sinus infection	2	0
Chronic tonsillar and dental infection	2	0
Hepatic toxemia	4	0
Nontuberculous pulmonary infection	0	2
Negative nitrogen balance	18	2

The question may be raised, if we are to insist on such thorough study as a prerequisite for treatment, whether there is available any therapy that will give results justifying the labor and expense involved. The general attitude among clinicians is that with the exception of thyroid extract the various endocrine extracts are inert if given by mouth. The basis for this point of view is the fact that, as usually given, they do not produce satisfactory results. There are a number of possible errors in this reasoning. Our failures may be due equally to our inability to diagnose correctly the endocrine disturbance in the individual patient, to inadequate dosage, to the presence of unrecognized focal infection, and, in adults, to the fact that growth and development are no longer possible. This last factor deserves especial consideration in view of the known effect of the anterior pituitary secretions.

Indeed, the results obtained in the adolescent group of this series suggests that the latter factor is an *extremely important one, for the results obtained* were surprisingly encouraging. The series is too small to prove anything, and the possibility that results credited to treatment may have been due to spontaneous normalization of the disturbed function always exists to plague us. But in comparing the results in the pituitary group with those obtained with thyroid extract in thyroid insufficiency, the difference in successes is not convincingly different (table 4). The criterion of success was the apparent response of the menstrual periods, and only those patients in whom essentially normal menstrual rhythm appeared and persisted for six months or longer are classified as normalized. Those in whom the periods became less infrequent but not monthly and those who have apparently normalized but have been under observation less than six months are classified only as improved, while those who for a period of more than six months have not established normal rhythm are classified as unimproved. From the figures as tabulated, it appears that anterior lobe extract given in adequate dosage by mouth to suitable adolescent patients is nearly as effective as thyroid extract and much more effective than ovarian extract. This is in accordance with the newer knowledge of the physiology of menstruation. It should be added, however, that adequate dosage was found to be from 20 to 60 grains (2 to 4 Gm.) daily in the patients in this series, and that in every patient treatment was preceded by clinical and metabolic studies designed to identify the disturbance of endocrine function present. The comparative effects of anterior pituitary and thyroid extracts in individual patients is shown in table 4. The results suggest that the anterior pituitary hormone which acts as the "motor" of the ovary may be efficient when given by mouth even though there is no demonstrable effect on skeletal growth.

TABLE 4.—*Results of Treatment*

	Menstrual Cycle		
Condition Treated	Normalized, per Cent	Improved, per Cent	Not Improved, per Cent
Thyrotoxicosis	50	25	25
Thyroid insufficiency	80	20	0
Pituitary insufficiency (anterior lobe —, posterior lobe +)	66	9	25
Pituitary insufficiency (bilobar)	50	25	25
Ovarian insufficiency (primary)	33	30	36
Nonendocrine conditions	66	19	15

CONCLUSIONS

1. The occurrence of delayed menarche or abnormal menstrual rhythm or flow in adolescent females is indicative of subnormal development of the reproductive organs which is likely to result in diminished fertility during adult life.

2. It is more often due to systemic functional disturbances than to pelvic disease, and of those disturbances insufficiency of the anterior pituitary hormone is the commonest.

3. Spontaneous compensation of such conditions does occur, and treatment is not indicated by slight delay in establishing normal menstruation; but, if that function has not become normal by the sixteenth year, the attitude of optimistic expectancy must be abandoned.

4. In the great majority of these adolescent patients, the symptoms are not due to primary ovarian insufficiency but to some endocrine or nonendocrine systemic condition that renders the potentially normal ovary inert. The commonest of these conditions are focal infection, insufficient protein in the diet, and insufficiency of the anterior pituitary hormone.

5. In the series here reported, the oral administration of anterior lobe pituitary substance, in adequate dosage, has given encouraging results in patients in whom the existence of such a pituitary insufficiency was demonstrated.

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ABSTRACT OF DISCUSSION

DR. C. J. MARINUS, Detroit: Dr. Lawrence's demonstration that in 50 per cent of his cases of sterility in adults there was a hypoplasia of the pelvic organs is a fact which, if accepted at all, must be given a great deal of importance. The reason for the presence of this hypoplasia should be found. His further demonstration that in the presence of a pelvic hypoplasia there is a high percentage of pituitary and thyroid insufficiency as demonstrated by careful laboratory and physical examinations is a fact of great significance. As Dr. Lawrence has pointed out, the usual method of handling these patients has been the administration of some form of ovarian therapy. In the beginning, the most common treatment was the use of corpus luteum by mouth. Then whole ovarian substance by mouth and hypodermically was used. With the discovery and preparation of the concentrated follicular hormones, these were used. It has been felt that the use of the follicular hormone was definitely indicated in all cases of amenorrhea, delayed menstruation or scanty menstruation. Indeed, from the practical clinical standpoint there were frequently successful results from the use of this treatment. I have been disappointed in finding, however, that shortly after the treatment was discontinued the menstrual disturbance returned to its previous condition. In other words, the treatment had acted as a temporary stimulant to the menstrual function and had actually accomplished nothing in curing the cause of the condition. Dr. Lawrence's figures have given the true explanation for this real failure in successful treatment. The condition is usually due to a disturbance in one of the other glands of internal secretion with a secondary effect on the ovary. Obviously, treatment with ovarian substances regardless of how potent they may be cannot be expected to give a real cure of the condition. It is hoped that this effort will be a stimulus to more accurate diagnosis in the cases of menstrual disturbances, particularly in the younger individuals in whom treatment can be expected to result in a permanent change for the better.

DR. CHARLES MAZER, Philadelphia: I heartily endorse Dr. Lawrence's classification of the etiology of female sterility but beg to differ somewhat with him as to therapy. I have tried out a large number of preparations produced by reputable firms in this country and in no case have I found, by means of the Aschheim-Zondek test for anterior pituitary hormone, a preparation that yielded a mouse unit of this hormone. Clinically, I have used anterior pituitary extracts by mouth and needle with meager results. In a few patients, improvement was noted. A potent product of the anterior pituitary gland is as yet not obtainable in this country. The Germans claim to have produced a potent product from the urine of pregnant women.

DR. CHARLES H. LAWRENCE, JR., Boston: It is possible that many of these patients spontaneously become normal while they are taking pituitary extract by mouth. Until a large series of cases has been observed it will be impossible to determine how much must be written off for the natural tendency of these things to become normal. Until some method of physiologically standardizing endocrine products has been evolved, I don't know how any other test than clinical experience can be used. There is neither time nor space to illustrate some of the cases on which this paper is based but it seems to me that, if medication is pushed to a sufficient dosage, if foci of infection are removed, and if the patient's general condition is improved, surprisingly good results may be obtained in the pituitary group. Certainly, it seems to me far preferable than the administration of ovarian therapy.

THE SIGNIFICANCE OF ADVANCED TUBERCULOUS INFECTION OF SCHOOL CHILDREN [*]

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Within the last five years, extensive studies by Opie and McPhedran,[1] Chadwick,[2] Rathbun,[3] Myers,[4] and Opie, Landis, McPhedran and Hetherington [5] have demonstrated the widespread occurrence of grave tuberculous lesions in the lungs of children who do not seem to be sick and in many instances are well nourished and apparently in robust health. These children do not have the symptoms or physical signs usually associated with pulmonary tuberculosis. Tuberculous infection is discovered by the tuberculin test, and roentgenologic examination furnishes a measure of its severity by revealing the extent and character of the lesion. Within a short period a considerable amount of information has been accumulated concerning the clinical significance and probable outcome of the different lesions that are definable, but as yet this knowledge is incomplete and will be increased largely by observations continued for years, because the disease usually pursues a chronic course. Knowledge of the prolonged latent period of tuberculosis is gradually being enlarged.

These studies have shown that the transition from latent to clinically manifest disease is often defined with much difficulty and that some latent lesions are more extensive than those that are accompanied by symptoms and physical signs.

Studies undertaken with the aid of all available methods to discover tuberculosis in school children have shown, moreover, that a considerable number of children who suffer with clinically manifest tuberculosis escape the attention of parents, teachers, school nurses and physicians, even though medical inspection is as effective as possible. In association with advanced infiltration of the lung substance recognized by roentgenologic examination either at the apex or, less frequently, in other parts of the lung field, there may be deficient expansion, diminished resonance and râles. In a relatively small number of instances, inquiry discloses persistent cough. In such cases a history of contact with tuberculosis has seldom been obtained from the children directly, but the parents more frequently reveal the child's association with some one who has apparently suffered with the disease.

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[*] From the Henry Phipps Institute, University of Pennsylvania.

[*] Read before the joint meeting of the Section on Diseases of Children and the Section on Preventive and Industrial Medicine and Public Health at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

1. Opie, E. L., and McPhedran, F. M.: Am. Rev. Tuberc. **14:** 347 (Oct.) 1926.
2. Chadwick, H. D.: Am. Rev. Tuberc. **15:** 601 (May) 1927.
3. Rathbun, W. L.: Tr. Nat. Tuberc. A. **23:** 164, 1927.
4. Myers, J. A.: Am. Rev. Tuberc. **16:** 409 (Oct.) 1927; **21:** 479, 509 (April) 1930.
5. Opie, E. L.; Landis, H. R. M.; McPhedran, F. M., and Hetherington, H. W.: Am. Rev. Tuberc. **20:** 413 (Oct.) 1929. Hetherington, H. W.; McPhedran, F. M.; Landis, H. R. M., and Opie, E. L.: Ibid., p. 421. Hetherington, H. W.: Ibid., p. 511. McPhedran, F. M.: Ibid., p. 532.

A survey [5] undertaken by the Henry Phipps Institute to discover tuberculosis in children of the public schools has been conducted with the aid of a grant from the Metropolitan Life Insurance Company. It has had the cooperation of the Division of Medical Inspection of Schools under the direction of Dr. Cornell. In most of the schools that were investigated, pupils were tested with tuberculin and those who reacted were given roentgen examination and when necessary physical examination.

Table 1 is compiled from the data collected by the survey of school children in Philadelphia made by Opie, Landis, McPhedran and Hetherington to show the incidence of grave tuberculous infection at different ages.

Table 1.—*Tuberculous Infection in Children Attending School*

Years	Children Tested with Tuberculin	Children That Reacted	Children That Received Roentgen Examination	Tuberculous Foci in Lungs or Lymph Nodes, per Cent	Childhood Type of Tuberculosis: Latent Infiltration, per Cent	Childhood Type of Tuberculosis: Clinically Manifest, per Cent	Adult Type of Tuberculosis: Latent Apical, per Cent	Adult Type of Tuberculosis: Clinically Manifest, per Cent
5-9	572	284	124	5.9	1.2	0.6	0	0
10-14	683	467	452	13.9	2.1	0.5	0.5	0.1
15-19	1,295	1,066	1,060	20.1	1.9	0.2	1.0	0.5

Tables 20 A and 20 B of the report [5] should be consulted. The first school examined has been eliminated from the enumeration because only a small part of the children who reacted to tuberculin received roentgenologic examination. Children between the ages of 5 and 9 years included in the table were given roentgenologic examination if they reacted to 0.01 mg. of tuberculin. Table 23 of the report shows that the percentage of grave lesions (latent infiltration of childhood type, latent apical lesions and manifest tuberculosis) will not be materially altered by excluding children who reacted to smaller quantities of tuberculin.

CALCIFIED NODULES IN THE SUBSTANCE OF THE LUNG

Minor tuberculous lesions of the lung substance are not recorded on roentgenograms because small foci of consolidated lung tissue, even when they have undergone caseation, are not sufficiently opaque to x-rays. When calcium is deposited in caseous tissue very small lesions become conspicuous, even though the amount of calcium present is not enough to change materially the consistency of the caseous material. There is abundant evidence that tuberculous lesions of the lung may resolve completely or in part, but dissolution of lesions is certainly retarded, if not wholly prevented, by caseation. Tuberculous foci that have undergone calcification persist throughout life as scars readily recognizable in roentgenograms unless they are concealed by opaque organs.

TUBERCULOSIS OF TRACHEOBRONCHIAL LYMPH NODES

Tuberculosis of the tracheobronchial lymph nodes is evident in roentgenograms when caseous material has become partially or completely calcified. Caseous lymph nodes with no calcification are recorded in roentgenograms only when they have undergone massive enlargement. The lymph nodes that are the sites of visible tuberculosis are found at the hilus of the lung in contact with the larger bronchial trunks, below the bifurcation of the trachea, where the largest lesions are found, and on one or the other side of the trachea, being usually more conspicuous on the right. Masses

Table 2.—*Tuberculosis of Childhood Type with no Significant Symptoms or Physical Signs (Latent Tuberculous Infiltration of the Lung)*

Designation of Child	Sex*	Race†	Age	Per Cent of Normal Weight	Reaction to 0.01 Mg. Tuberculin	Temperature	Site of Associated Tuberculous Lesion	Comment
A 7	♂	C	7	102	+++	99.6-100	Tracheobronchial lymph nodes	
BC 5	♀	W	7	99	+	99.8	Tracheobronchial lymph nodes	Clinical tuberculosis 1½ yr. later
D 6	♂	C	7	92	+	99.2-100	Tracheobronchial lymph nodes	Clinical tuberculosis 3 mo. later
D 7	♂	C	7	122	+++	99.2-100.2	Pleural	
D 8	♀	C	7	104	++	99.4-99.6	....	Increased 8 mo. later
D 9	♀	C	7	100	+++	99-99.6	Tracheobronchial lymph nodes	
D 10	♀	W	8	112	+++	98.8	Tracheobronchial lymph nodes	
BC 6	♂	W	9	109	+++	99.4	....	
BC 7	♂	W	10	116	+++	99.4	....	Increased 1½ yr. later
BC 8	♀	W	11	90	+	....	Tracheobronchial lymph nodes	
BC 9	♂	W	12	101	++	99	Tracheobronchial lymph nodes	
D 11	♀	C	12	85	+++	98.4	Tracheobronchial lymph nodes	
D 12	♂	W	13	104	+++	99.2-100.4		
D 13	♀	C	13	99	+++	98.8		
D 14	♀	W	14	82	+	98.8	Tracheobronchial lymph nodes; pulmonary nodule	
E 11	♂	W	14	111	+++	98.6	Tracheobronchial lymph nodes	Probably healing
E 13	♂	W	14	91	+++	98.8	....	Probably healing
F 15	♀	W	14	87	++	98.6	Tracheobronchial lymph nodes; pulmonary nodules	Perhaps healing
F 16	♀	W	14	100	+	99.6	Tracheobronchial lymph nodes; pulmonary nodules	Probably healing
G 8	♀	W	14	98	++	99	....	
D 15	♂	W	15	91	++	98	Tracheobronchial lymph nodes; pulmonary nodules	Perhaps healing
E 10	♂	W	15	98	+	98.6	Tracheobronchial lymph nodes; pulmonary nodules	Probably healing
E 14	♂	W	15	94	+	99	....	Perhaps healing
E 15	♂	W	15	108	+	99.4	Pulmonary nodules	Probably healed
F 17	♀	W	15	91	+++	98.6	Tracheobronchial lymph nodes	Perhaps healing
F 18	♀	W	15	120	+++	98.8	....	Probably healing
F 19	♀	W	15	104	++	98.8-100	Tracheobronchial lymph nodes; pulmonary nodules	Probably healing
G 9	♀	W	15	81	++	98.6	Tracheobronchial lymph nodes; pulmonary nodules	Probably healed
G 10	♀	W	16	110	+	98.6	Tracheobronchial lymph nodes; pulmonary nodules	Probably healed
G 11	♀	W	16	90	++	99	....	
G 12	♂	W	16	84	++	99.1	....	Probably healed
E 8	♂	W	16	93	+	99.4	Tracheobronchial lymph nodes	Probably healing
E 12	♂	W	16	91	+++	98.8	....	Perhaps healing
E 9	♂	W	17	101	+++	98.6	Tracheobronchial lymph nodes	Perhaps healing
E 16	♂	C	17	109	+	97.6	Pulmonary nodules	Probably healing
E 18	♂	W	17	107	++	99.2	....	Probably healing
G 13	♀	W	17	75	++	98.8	Tracheobronchial lymph nodes; pulmonary nodule	Probably healed
E 17	♂	W	18	95	++	99	....	Probably healing
F 20	♀	W	18	106	++	99.4	Tracheobronchial lymph nodes; pulmonary nodules	Probably healing
F 21	♀	W	18	93	+	98	Tracheobronchial lymph nodes	Probably healing
F 22	♀	W	18	115	+	98.4	....	
G 19	♀	W	19	95	+	98.6	Tracheobronchial lymph nodes	Probably healed

* In the tables, ♂ denotes male; ♀, female.

† C indicates colored; W, white.

below the bifurcation of the trachea are occasionally from 2 to 5 cm. in diameter. Dense, sharply defined opacity suggests that calcification is advanced, whereas shadows of less density occurring in small spots, which give a granular appearance to the lesion, suggest the early stage of calcification.

The associated pulmonary lesion is often invisible, being small or behind an opaque organ; but in more than half of the instances in which tuberculosis of tracheobronchial lymph nodes is evident a calcified nodule or, less frequently, the shadow of diffuse infiltration is seen in the lung field nearby. Almost always these lesions are smaller or less conspicuous than those of the tracheobronchial lymph nodes, and for this reason are less frequently recorded in the roentgenogram.

Calcium deposited in caseous material casts a conspicuous shadow on the film even though the caseous material, as can be shown at autopsy, is putty-like and contains no solid particles. Calcification recognizable in roentgenograms does not prove that the lesion is arrested, for observations made post mortem have repeatedly shown that the disease may be progressive in the lung even though the lymph node is the site of calcium deposit, and that tuberculosis of lymph nodes may be progressive even though foci of calcification occur within them.

TABLE 3.—*Tuberculosis of Childhood Type with Symptoms or Physical Signs (Clinically Manifest)*

Designation of Child	Sex	Age	Race	Per Cent of Normal Weight	Reaction to 0.01 Mg. Tuberculin	Temperature	Site of Associated Tuberculous Lesion	Symptoms	Physical Signs	Comment
A 1	♂	8	Negro	94	+	100.6-102	Tracheobronchial lymph nodes	....	Râles	Moderately advanced tuberculosis 2½ years later
D 1	♂	8	Negro	94	++	99.8-100.6	....	Cough	......	Lesion somewhat diminished 9 months later
D 2	♀	8	Negro	113	++	99.4-99.6	....	....	Râles, diminished resonance	
A 2	♀	9	Negro	96	+	99.2-100	....	Cough	Râles	
D 3	♂	9	Negro	88	++	99.6	....	Cough	Râles, diminished resonance	Moderately advanced tuberculosis
D 4	♀	12	Negro	112	+++	98-98.6	Tracheobronchial lymph nodes and pulmonary nodule	Cough	Râles	
D 5	♂	14	White	104	+++	99	Tracheobronchial lymph nodes and pulmonary nodule	....	Râles	
E 1	♂	14	White	100	+++	98.6	Tracheobronchial lymph nodes	....	Râles	
F 2	♀	14	White	93	++	98.4	Tracheobronchial lymph nodes and pulmonary nodules	....	Râles, diminished resonance	
G 2	♂	19	White	104	+++	....	....	....	Deficient expansion	Pleural lesion probably arrested

MASSIVE TUBERCULOSIS OF LYMPH NODES WITH NO CALCIFICATION

Increased density of ill defined hilus shadows or recognition of a thickened mediastinal shadow does not identify tuberculosis of tracheobronchial lymph nodes. Tuberculosis of the mediastinum, which has been admirably described by Kornblum and Cooper,[6] probably does not occur in children able to attend school.

Small caseous lymph nodes are not recognizable in roentgenograms of the chest, but massive tuberculosis of these organs may cause such enlargement and opacity that their rounded outline is distinctly recognizable. The shadow of the structures at the hilus tends to obscure them, but when they project into the clearer lung field their outline becomes visible.[7] Similarly, lymph nodes beside the trachea can be traced when they project far enough beyond the usual lateral margin of the mediastinum.

In a girl aged 10 years, the oval outlines of two large uncalcified lymph nodes were recognized in the right hilus and a third at the right side of the trachea. One year and three months later, calcification in small spots could be seen. In a second child, aged 10 years, a dense oval shadow, 3.5 by 1.5 cm., was situated at the right of the trachea and projected into the lung field. In a boy, aged 7 years, an immense rounded mass, 6.4 by 3.5 cm., was outlined at the right hilus and beside the trachea; infiltration of the lung substance extended from it to the periphery of the lung. Three months later physical signs of tuberculosis (râles) were recognized and pulmonary infiltration had increased, but the mass was no longer defined with certainty.

This lesion may heal completely and produce the massive calcification of tracheobronchial lymph nodes occasionally seen in adolescent children and adults. Nevertheless it has obviously grave significance and has been the precursor of acute miliary tuberculosis.

TUBERCULOUS INFILTRATION OF THE LUNG OF CHILDHOOD TYPE

In table 2 are collected instances in which infiltration of the lung of childhood type was not associated with symptoms or physical signs. The extent of the infiltration in these children was occasionally as great as in those with symptoms or physical signs cited in table 3 and, save in children older than 14 years, exhibited the same relation to weight and tuberculin reaction. Slight elevation of temperature was repeatedly found in these children, but this occurs so frequently in young children that it could not be referred to tuberculous infection with certainty. In almost all those over 14 years of age the character of the lesion suggested arrest.

In table 3 are collected instances of clinically manifest pulmonary tuberculosis of childhood type. In half of them the weight of the child was above normal for the age and height, and in only one instance was the weight notably decreased. There was elevation of temperature, usually slight, in approximately half of the cases. In all of them 0.01 mg. of tuberculin caused a reaction, which in the majority was intense (++ or +++); cough was present in some. Râles were detected in all save two of these children. In a girl (G 2), aged 19 years, a circumscribed lesion in contact with the diaphragmatic pleura was manifested by deficient expansion, but the character of the lesion and the absence of other physical signs or symptoms suggested arrest of the disease.

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[6] Kornblum, Karl; and Cooper, D. A.: Am J. Roentgenol. 23:276 (March) 1930.

[7] McPhedran (footnote 5, fourth reference).

In roentgenograms, tuberculous infiltration of childhood type presumably caused by tuberculous bronchopneumonia with subsequent tubercle formation is usually recognized as a soft, ill defined, occasionally flocculent opacity in any part of the lung field. It is sharply limited only when it comes in contact with an interlobar surface. Calcification of the nearest lymph nodes at the hilus of the lung is not infrequently recognizable and confirms the diagnosis of tuberculosis.

Dense opacity indicates that pneumonic consolidation, presumably with some caseation, has affected a wide area of lung substance. The center of the abnormal shadow is a dense homogeneous opacity, which decreases at the margin, becomes more or less irregular and disappears into the normal lung field. McPhedran[5] has found that such a consolidated area in some instances may undergo resolution, gradually becoming less opaque, particularly at the lateral aspect, and may finally be reduced to strands and spots partly calcified.

Table 4.—*Tuberculosis of Adult Type with no Symptoms or Physical Signs (Latent Apical Tuberculosis)*

Designation of Child	Sex	Race	Age	Per Cent of Normal Weight	Reaction to 0.01 mg. Tuberculin	Temperature	Site of Associated Tuberculous Lesion
BC 1	♀	White	11	103	++	98	
BC 2	♂	White	13	106	++	99.4	Tracheobronchial lymph nodes
BC 3	♀	White	13	88	++	98.6	Tracheobronchial lymph nodes and pulmonary nodule
E 3	♂	White	13	104	+	98.8	
BC 4	♂	White	14	98	++	99	
G 3	♀	White	14	75	+++	98.8	
E 5	♂	White	15	97	++	98.6	Tracheobronchial lymph nodes and pulmonary nodules
F 9	♀	White	15	97	++	100	
F 10	♀	White	15	87	+	98.6	Tracheobronchial lymph nodes and pulmonary nodule
A 6	♀	Colored	16	82	++	98.4-98.6	
E 6	♂	White	16	103	+	98.8	Pulmonary nodule
E 7	♂	White	16	115	+	98.6	Tracheobronchial lymph nodes and pulmonary nodules
G 4	♂	White	16	104	+	98	Tracheobronchial lymph nodes and pulmonary nodule
G 5	♂	White	16	86	+	....	
F 11	♀	Colored	17	75	+	98.8	Tracheobronchial lymph nodes
F 12	♀	White	17	95	+	98.6	Tracheobronchial lymph nodes and pulmonary nodules
F 13	♀	White	17	86	+	99	
F 14	♀	White	17	81	+++	99.8	
G 6	♀	White	17	102	+	99.2	Tracheobronchial lymph nodes and pulmonary nodule
G 7	♀	White	17	90	+	98.2	

In older children, usually after 14 years of age, recognizable tuberculous lesions in the lung fields are usually strandlike and contain calcified nodules. Even though there is an active tuberculin reaction, such lesions are doubtless in most instances arrested.

In twenty-five among forty-five instances of the childhood type of pulmonary tuberculosis, both latent and manifest, tuberculosis of tracheobronchial lymph nodes was sufficiently conspicuous to be recognizable in roentgenograms.

LOCALIZED TUBERCULOSIS OF PLEURA AND UNDERLYING LUNG

In two instances (D 7, table 2 and G 2, table 3) roentgenograms have clearly defined tuberculous masses situated in contact with the pleura and evidently invading a narrow zone of lung tissue. In one instance the lesion extended from the seventh to the tenth rib in the axillary line and in the other it covered the diaphragm from the left border of the heart to the costophrenic angle. The pulmonary aspect of the mass was sharply defined and rounded. I have seen this lesion twice in adult Negroes, in one case associated with massive caseous tuberculosis of the nearest lymph node and general miliary tuberculosis.[8]

PULMONARY TUBERCULOSIS OF ADULT TYPE

Table 4 contains instances of latent apical tuberculosis, in some of which the lesions are as advanced as those accompanied by symptoms (table 5). In approximately one third of those with latent lesions there was overweight and in an equal number there was notable underweight. The tuberculin reaction was, as a rule, less intense than with clinically manifest apical disease, and the temperature was seldom elevated.

Apical lesions when least conspicuous appear as soft shadows or mottling below the border of the second rib. Wedges or salients projecting downward in this position are not infrequently seen. The extent and density of the infiltration varies widely. The lesion may occupy the entire apex above the clavicle, and, even though unaccompanied by symptoms or physical signs, may extend below the clavicle in the axillary region.

Sharply defined strandlike shadows in the apex suggest that the lesion is in the process of healing, but this evidence is uncertain and repeated examinations are essential to exclude the possibility that the lesion is progressive.

Table 5 contains instances of the adult type of pulmonary tuberculosis recognized in school children by roentgenologic examination and by physical signs. Weight is more frequently diminished than with the childhood type of infection; it is in none of these cases above normal and in several there is noteworthy underweight. There may be scant increase of temperature. Râles were less frequently heard than with the childhood type of pulmonary tuberculosis.

Among thirty-one instances of pulmonary tuberculosis of adult type, clinically manifest and latent, tuberculosis of the tracheobronchial lymph nodes was recognized in thirteen, and in nearly all of these a calcified nodule was found in the lung field nearby.

VALUE OF THE TUBERCULIN TEST

In children able to attend school, failure to react to tuberculin indicates the absence of infection with tuberculosis and demonstrates that a suspected lesion is not the result of this disease.

Exceptions to the foregoing statement are a small number of calcified scars of healed tuberculosis with no reaction to tuberculin. Animal experiments and some clinical observations show that sensitization to tuberculin may disappear after complete recovery from tuberculosis. A few school children with calcified nodules in the lungs and adjacent lymph nodes have failed to react. These children, in whom the lesion is completely healed, have perhaps lost all acquired immunity.

The intensity of the tuberculin reaction has considerable significance. All instances of clinically manifest tuberculosis among school children occurred in those who reacted to 0.01 mg. of tuberculin, and in two thirds of these the reaction was three plus. With few exceptions, children with latent infiltration of childhood type reacted to the same amount, and in considerably more than half of them the reaction was three plus. Three fourths of the children with latent apical tuberculosis reacted to 0.01 mg. of tuberculin.

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[8] Opie, E. L.: Am. Rev. Tuberc. **10:** 265 (Nov.) 1924.

An intense tuberculin reaction may be associated with an apparently insignificant lesion, but the probability of grave infection increases with the intensity of the reaction.

RELATION OF UNDERWEIGHT TO TUBERCULOUS INFECTION

The traditional association of tuberculosis with loss of body weight has suggested that this symptom may be used for the discovery of concealed tuberculous infection. Hetherington,[9] however, has compared the relation of weight to tuberculous infection in 2,000 school children and his observations show that loss of weight cannot be used as an index of tuberculous infection until the disease is so far advanced that it has undermined health.

Weight below normal is not found more frequently in children who react to tuberculin than in those who give no skin reaction.

HISTORY OF CONTACT WITH TUBERCULOSIS

It is seldom possible to obtain from school children a history of contact with tuberculosis; but, when advanced infection is recognized in a child, consultation with the parents may disclose the source of contagion.

Study of the contagion of tuberculosis in families made during the last six years, and still in progress, at the Henry Phipps Institute has shown that a large percentage of all instances of advanced tuberculous infection occurs in persons known to have been exposed to open tuberculosis within the family group. In these families at least 9 per cent of the children develop clinically manifest disease; many develop latent infiltrating lesions of childhood or lesions of adult type, and tuberculosis of tracheobronchial lymph nodes is found in approximately one fourth of them. The transition from grave latent lesions to clinically manifest disease has been repeatedly followed.

Table 5.—*Tuberculosis of Adult Type*

Designation of Child	Sex	Age	Race	Per Cent of Normal Weight	Reaction to 0.01 Mg. Tuberculin	Temperature	Site of Associated Tuberculous Lesion	Symptoms	Physical Signs	Comment
A 3	♀	12	*Negro*	*89*	++	98-98.6	....	Cough	Râles	
A 4	♀	12	Negro	96	++	99.4-100	....	....	Râles	Died from tuberculosis 1 year later
F 1	♀	12	White	94	+++	99.2	Tracheobronchial lymph nodes and pulmonary nodule	....	Diminished resonance	
A 5	♂	13	*Negro*	*95*	+++	99	....	Tb. in sputum by g. p. inoculation	Deficient expansion	Died from tuberculosis after 2 yr. and 11 mo.
E 2	♂	15	White	68	++	99.4	Tracheobronchial lymph nodes and pulmonary nodule	....	Râles, deficient expansion	
F 3	♀	15	White	93	+	98.4	Tracheobronchial lymph nodes and pulmonary nodule	....	Diminished resonance, deficient expansion	
F 4	♀	17	White	99	+++	97.4	....	....	Diminished resonance, deficient expansion	
F 5	♀	17	White	85	+	99.6	....	....	Diminished resonance, deficient expansion	
F 6	♀	17	Negro	78	++	99	....	....	Diminished resonance, deficient expansion	
F 7	♀	18	Negro	100	+	99	Tracheobronchial lymph nodes and pulmonary nodules	Cough	Diminished resonance, deficient expansion	
F 8	♀	18	White	90	+	98.8	....	....	Diminished resonance, deficient expansion	

Many children with recognizable tracheobronchial tuberculosis are considerably above normal weight, and no material loss of weight accompanied this lesion. In three instances of massive caseous tuberculosis of tracheobronchial lymph nodes the body weight has been 90, 92 and 96 per cent of normal.

Among forty-four school children with the childhood type of pulmonary tuberculosis (tables 2 and 3), both clinically manifest and latent, overweight was just as frequent as underweight and when, in only four instances, noteworthy underweight occurred, it was probably not referable to tuberculosis.

Among twenty school children with the adult type of tuberculosis (tables 4 and 5), both the clinically manifest and latent apical, the weight was slightly below normal in fifteen and materially diminished (more than 10 per cent of normal) in five. This lesion evidently may cause some impairment of nutrition in children still able to attend school.

If all school children known to have been exposed to open tuberculosis received tuberculin tests and adequate roentgenologic examination, a large number of those with advanced tuberculous infection would be discovered. Since tuberculosis is a reportable disease there is at hand a means for the selection of children with advanced tuberculous infection.

Children who at the time of examination are still exposed to open tuberculosis are in obvious danger of reinfection, and study of such children shows clearly that in them existing infection provides an inefficient immunization against grave disease. The danger to which children are exposed differs widely in different households; it varies with the character of the lesion in the person who has open tuberculosis, with the habits and cleanliness of the patient and of the family, with the degree of crowding of the household and other conditions. Advanced tuberculous infection, for example, massive tuberculosis of tracheobronchial lymph nodes, indicates that the child has received tubercle bacilli in large number. If this exposure continues, reinfection may result and the adult type of pulmonary tuberculosis makes its appearance; tables 4 and 5 show that apical lesions frequently accompany the calcified scars of a first infection in lung and lymph nodes.

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[9] Hetherington, H. W.: Am. Rev. Tuberc. **16**: 459 (Oct.) 1927.

Children who have been exposed to open tuberculosis should receive tuberculin tests repeated every year or, if still exposed, every six months, and a child who reacts to tuberculin should be given roentgenographic examination.

WIDESPREAD TUBERCULOUS INFECTION

Intracutaneous tuberculin tests made on 4,000 school children from 1926 to 1929 in Philadelphia show that 37 per cent of the children are infected at 5 years of age, 71 per cent at 10 years, 80 per cent at 15 years, and 90 per cent at 18 years. These figures are only slightly lower than those obtained twenty years ago in Vienna by Hamburger and Monti,[10] who used the same method.

When tuberculin is applied to the scarified skin by the method of Pirquet, much smaller figures have been obtained.

Aronson, at the Henry Phipps Institute, has recently compared the two methods and has found that approximately 25 per cent more school children react to the intracutaneous than to the Pirquet test. Debré and Cofino,[11] applying these tests to infants treated with B C G, found that the number of those who react is increased 75 per cent by the intracutaneous method. It is my belief that the Pirquet test should be discarded as a means of determining the incidence of tuberculous infection. Furthermore, the strength of tuberculin varies widely and must be determined before it is used.

In rural districts tuberculous infection is less widely disseminated than in the cities. Intracutaneous tests made by Slater [12] in Minnesota and a survey of school children in Ontario [13] have shown that the number who react is much smaller in country districts than in the larger cities.

It has been assumed that a fall in the death rate from tuberculosis in cities such as Philadelphia would be accompanied by a corresponding diminution in the number of those who acquire minor tuberculous infection. Nevertheless, observations made on young adults attending college in this city show that at least 95 per cent react to tuberculin. Dissemination of tubercle bacilli is evidently still sufficiently widespread in cities to bring about infection of a large percentage of all children before they reach adult life. Observations at the Henry Phipps Institute show that the relatively small number of these infections acquired at home from a member of the family suffering with open tuberculosis are far more severe than those acquired by casual contacts outside the household. With the falling death rate from tuberculosis during recent years there has been diminution in the severity of infections, but in the cities at least no notable diminution in their number.

Furthermore, since the incidence of infection increases rapidly from infancy to the tenth year, when 70 per cent of children are infected, it may be assumed that opportunity for similar infection is repeated throughout life, probably with increasing frequency. From experiments on animals and observations on human beings it is known that sensitization to tuberculin disappears when the tuberculous lesion has completely healed, but sustained contact with the tubercle bacillus throughout adult life maintains hypersensitiveness to products of the micro-organism. The resulting immunity is limited and is overcome when the number of infecting tubercle bacilli is sufficiently great. Nevertheless, evidence that the earlier infection modifies subsequent disease is furnished by the characters of the adult type of pulmonary tuberculosis seen in association with the calcified scars of a first infection.

SIGNIFICANCE OF TUBERCULOUS INFECTION IN SCHOOL CHILDREN

The significance of the lesions that have been described varies widely.

A. Demonstrable tuberculous infection with the following characters is prevalent among healthy children and requires no special care to prevent its further development:

1. Infection revealed by the tuberculin test with no lesion demonstrable by roentgenologic examination.
2. Circumscribed pulmonary nodules that have undergone calcification.
3. Roentgenographically demonstrable tuberculosis of tracheobronchial lymph nodes, with the exceptions to be cited.

TABLE 6.—*Percentage of School Children Who Required Special Care*

	Prophylactic Care for Latent Tuberculosis of the Lungs		Treatment for Clinically Manifest Tuberculosis of the Lungs	
Years	Childhood Type	Adult Type	Childhood Type	Adult Type
5- 9	1.2	0	0.6	0
10-14	1.0	0.5	0.3	0.1
15-19	0.2	1.0	0.2	0.5

B. Children with the following conditions are in danger of tuberculosis that will undermine health and should receive special care in open-air schools, preventoriums or by other means to prevent further progress of the disease:

1. Latent tuberculous infiltration of the childhood type evident in roentgenograms, often associated with tuberculosis of tracheobronchial lymph nodes. In some instances, particularly in older children, these lesions are the scars of healed infection and do not require special care.
2. Tuberculosis of tracheobronchial lymph nodes with some calcification, recognizable by roentgenologic examination, (*a*) when the child is still in contact with open tuberculosis, (*b*) when the tuberculin reaction is intense, (*c*) when the lesions are unusually large or very numerous.
3. Latent tuberculosis of adult type.
4. Arrested pulmonary tuberculosis, notably in children who have been discharged from sanatoriums.
5. An active tuberculin reaction or an otherwise negligible tuberculous lesion recognized by roentgenologic examination in association with impaired health and conspicuous underweight, which are perhaps not referable to tuberculosis.

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[10] Hamburger, F., and Monti, R.: München. med. Wchnschr. **56:** 449, 1909.

[11] Debré, Robert; and Cofino, E.: Ann. de l'Inst. Pasteur **44:** 12 (Jan.) 1930.

[12] Slater, S. A.: Am. Rev. Tuberc. **10:** 299 (Nov.) 1924.

[13] Report of an Ontario Survey of School and Preschool Children, Publication of the *Canadian Tuberculosis* Association.

C. Children who should receive sanatorium treatment or its equivalent are:

1. Children with tuberculous lesions accompanied by symptoms and physical signs referable to tuberculosis.
2. Children with latent lesions of the lung either of childhood or adult type that on repeated roentgenologic examination are found to be progressive.
3. Children with massive tuberculosis of tracheobronchial lymph nodes that has not undergone calcification.

An approximate measure of the number of children who required special care to protect them from tuberculosis may be obtained from tables 1 to 5 and are summarized in table 6.

The table excludes latent lesions of childhood type that are arrested (included in table 1). It does not include lesions of tracheobronchial lymph nodes that should receive special prophylactic care (listed under B 2) or arrested tuberculosis (B 4 and 5). The number of these lesions is relatively small, but with present knowledge it cannot be determined exactly.

Of the school children who were examined, from 1.5 to 2 per cent required special prophylactic care, and from 0.6 to 0.7 per cent should receive sanatorium treatment or its equivalent.

CONTROL OF TUBERCULOSIS IN SCHOOL CHILDREN

Demonstration of the frequency of advanced tuberculous infection among school children reveals one of the gravest problems of school hygiene, and at the same time suggests a promising and untried attack on tuberculosis.

The discovery of children with advanced tuberculous infection is by no means easy and requires a staff adequately trained in the use of technical procedures applicable to its detection. Routine roentgenologic methods are insufficient. Roentgenologic examination applied to the recognition of latent or clinically manifest lesions in children well enough to attend school requires methods specially adapted to examination of the chest, and the interpretation of plates demands experience together with intimate knowledge of the nature and clinical course of the disease. Furthermore, the application of roentgenologic methods to the examination of school children is costly. Even a simple procedure such as the tuberculin test is laborious, subject to many errors and, in the absence of essential precautions, may give misleading information. School surveys for the discovery of tuberculosis by these methods are inadvisable unless trained personnel and adequate facilities are available.

In the search for tuberculous infection, two procedures are available: 1. Examination by tuberculin tests and roentgenologic examination of all children known to be exposed to open tuberculosis; this method would be effective in proportion to the success of tuberculosis registration. 2. Roentgenologic examination of school children who react to tuberculin, precedence being given to groups of children, such as adolescent girls and Negro children, among whom the disease is known to be unusually frequent.

Measures recognized clinically to be the most effective in treatment are applicable at greater advantage to tuberculosis before it has impaired health. Many children in whom latent disease is recognizable require immediate sanatorium treatment or its equivalent. For children with grave latent lesions that are not progressive, avoidance of fatigue and regular periods of rest, sufficient nourishment, sunlight and fresh air will doubtless with few exceptions induce healing if further infection is excluded.

Preventoriums, open-air schools and summer camps to prevent tuberculosis in children believed to be in danger of developing it have been established on an elaborate scale in this country and in Europe. Records of the National Tuberculosis Association obtained through the kindness of Dr. Kendall Emerson show that there are in the United States thirty-two preventoriums with accommodations for 1,600 children; that fifty-seven preventorium units attached to sanatoriums provide for 3,400 children, and that the number of these institutions is rapidly increasing.[14] In 1926, the file maintained by the Elizabeth McCormick Memorial Fund showed that there are in 245 cities of the country 1,006 open-air schools with a capacity of 32,024. These figures are doubtless considerably larger now.

The aims of preventoriums and open-air schools vary considerably and are not as yet accurately focused on the medical problems with which they are essentially concerned. It is often stated without specific definition that they admit "pretuberculous" children. They are maintained for children "substandard in health," for it is vaguely assumed that any improvement in the health of children will prevent tuberculosis. Knowledge of grave latent tuberculosis of apparently healthy children accumulated during the last few years defines accurately a large part of the children who need prophylactic care to protect them from tuberculosis. It has shown that the discovery of these children is dependent on available technical procedures, and that preventive treatment must be guided by these procedures if it is to be effective.

Tuberculosis must be added to the list of diseases that can be successfully combated with the aid of public and other schools. Successful care of children with tuberculous infection will require modification of the school regimen, which should be adapted to special need. It is evident that much of the tuberculosis of adolescent children can be successfully combated by well known hygienic measures and modified high school courses that would preclude mental and physical fatigue. The undertaking is one that requires the cooperation of teachers, school administrations and physicians.

Early discovery, followed by suitable treatment, would arrest latent lesions and prevent clinical disease. Detection and cure of the latent infections of adolescent children can be used to prevent tuberculosis in early adult life when the disease is at its peak.

ABSTRACT OF DISCUSSION

Dr. Henry D. Chadwick, Detroit: In Massachusetts, where a hundred thousand school children were given the tuberculin test, the incidence of tuberculous infection was 28 per cent. It varied from this only about 1 per cent in each of the five years during which the work was done. A great variation was found in the incidence of infection in different communities and different areas in the same community. In one city of 60,000 people, the incidence of infection varied in different school districts from 11 per cent to 60 per cent. It was found, however, that whenever a group of 10,000 children was tested, regardless of where they lived, the average percentage of infection was approximately 28 per cent. Therefore, in comparing the studies made in different parts of the country, it is necessary to keep in mind the number of children tested before one can decide as to whether it is a true index of the amount of infection in the communities as a whole. There are nests of tuberculosis in city areas, and if tests are carried out in those places a high incidence of infection will be found which obviously will not be representative for the community. The childhood type of tuberculosis can be diagnosed only by the roentgen ray. Physical signs are usually absent in the childhood type of disease. The tuberculin test is the best means of determining what ones should be roentgenographed, as tuberculosis of both the childhood and the adult types are found frequently in children who are average weight or overweight. The physical examination, therefore, does not help to decide what children should have a roentgenogram to determine the presence or absence of tuberculosis. Four times as many cases of the childhood type of tuberculosis and twice as many cases of the adult type of tuberculosis are found among children with a history of exposure than in children giving no history of contact. Therefore, if a tuberculin test cannot be made on all children, at least all those should be tested in whom a history of exposure is obtained. The tuberculin test and roentgenogram of reactors should be used as a means of ferreting out other cases of tuberculosis.

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[14] Murphy, M. E.: Cong. internat de protection de l'enfance, 1928, I, Sec. 3, 250.

Dr. Edward J. Rogers, Pittsford, Vt.: Five different groups are working on the problem of childhood tuberculosis. Dr. Opie, who has been associated with Dr. McPhedran, Dr. Hetherington and Dr. Landis; Dr. Walter Rathbun, superintendent of the Newton Memorial Hospital for Tuberculosis at Cassadaga, New York; Dr. J. A. Myers of Minneapolis, Dr. Henry D. Chadwick, who superintended the examination of school children in Massachusetts for several years and is now doing the same type of work in Detroit, and the group at Saranac. All these men are doing intensive work. A man who goes into schools hunting cases of tuberculosis should first be sent to one or more of these five groups, because if an enthusiast is turned loose with an x-ray apparatus and a vial of tuberculin, he is going to create havoc in the community. The x-rays will show that a large number of children are already infected, but I doubt the wisdom of broadcasting to the public that the child with a positive skin test and a seemingly positive roentgenogram has "tuberculosis" and will eventually have "consumption."

Dr. E. L. Opie, Philadelphia: I should like to say a word about the public health aspect of the problem. Tuberculosis must be added to the list of diseases that can be attacked with advantage in the schools. It is evident that if the methods known to prevent its further development are applied to tuberculosis in the latent stage, in which it is recognizable, a large part of the infections that occur in later life can be controlled. I do not think that this is an easy problem. I do not think it can be done without adequately trained personnel and facilities that are costly, or that it should be undertaken otherwise. But by this means a large number of children can be found and protected from further development of the disease. Three broad groups have been mentioned, the largest with insignificant infections, a second requiring prophylactic care, and a third with clinically manifested disease, who it seems to me and to my colleagues should have sanatorium treatment or its equivalent. I should particularly like to say a word about the children with latent, infiltrating lesions that require prophylactic care. These are indefinitely spoken of as pretuberculous or substandard children, with the vague idea that if one improves the children's health one prevents tuberculosis. To care for them, a large and rapidly increasing number of preventoriums, open-air schools and summer camps have been established. It seems to me essential that they focus their activities on the medical problem before them. They have not done that up to this time. They do not select the right children and they do not give them care under guidance that will tell whether or not the disease is advancing. It seems to me that by so doing these institutions will vastly increase their opportunities. There is an opportunity to recognize tuberculosis before it has undermined health and to recognize a large part of the adult type of tuberculosis in adolescence that will develop into active disease during early adult life, and that is the period in which tuberculosis takes most of its victims. I believe this question of the latency of tuberculosis is one of great public health importance.

EPIDERMOPHYTOSIS AND EPIDERMOPHYTIDS OF THE HANDS*

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Mycotic hand eruptions frequently accompany similar ones on the feet. To explain this, Williams[1] and Bloch[2] independently advanced the hypothesis that the lesions on the hands, which are usually free of fungi, are dermatophytids secondary to foci on the feet which contain the organisms. Walthard[3] reported a case from Bloch's clinic, substantiating this view. In this patient fungi were present in lesions on the feet, and after a positive trichophytin test, a focal reaction took place in the hand lesions. Werner Jadassohn and Peck,[4] analyzing twenty-four cases, were able to support the belief that such concomitance existed between the foot and hand manifestations, the latter being trichophytids.

Subsequently Peck[5] was able to provoke the complete syndrome experimentally. In another patient with a demonstrated fungus infection of the feet and dyshidrotic vesicular lesions on the hands, he obtained a positive blood culture for fungi identical with those found on the feet, the hand lesions yielding no fungi on repeated examinations. The patient, moreover, gave a positive trichophytin reaction with a focal flare-up of the lesions on the hands. The organism isolated in this instance, as in the entire series of Jadassohn and Peck, was the epidermophyton of Kaufmann-Wolf. As stated, Peck experimentally reproduced the entire syndrome of epidermophytosis of the feet and epidermophytids of the hands in a human being. This fact, together with the recovery of the fungus from the circulating blood, established the original contention of Williams and Bloch, and is the first time a mycid has been experimentally engendered in a hitherto well person.

In the same article Peck published an account of a patient with primary epidermophytosis of one hand and ensuing epidermophytids on the other, as well as on one foot. This is the converse of what usually takes place. The experience furnishing the basis of the present paper corresponds closely with the foregoing one of Peck, save that the feet were free from lesions. The salient features of the history were as follows:

Mrs. M. K., aged 42, a musician, born in the United States, presented herself, April 18, 1928, with an itching eruption, chiefly on the hands and feet, but also with areas disseminated on the legs, thighs, arms, forearms and torso. Her general history was irrelevant.

On examination, lesions were found distributed as described. Those on the hands and feet were grouped vesicles on nummular, red, swollen disks on all surfaces of the fingers and toes and in the interdigital spaces. Isolated vesicles were also present. The usual consecutive lesions existed. Similar patches were situated on the arms, forearms, legs and thighs, but relatively farther apart than on the hands and feet, while an occasional patch could be seen on the torso. Under suitable local treatment most of the areas cleared up within sixteen days and the patient was not again seen for nearly a year.

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* Read before the Section on Dermatology and Syphilology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

1. Williams, C. M.: The Enlarging Conception of Dermatophytosis, Arch. Dermat. & Syph. **15**: 451 (April) 1927.

2. Bloch, Bruno: Handb. d. Haut- u. Geschlechtskr. **77**: 564, 1928.

3. Walthard, B.: Zur Pathogenese der dishidrotischen Symptomenkomplexe, über einem unter dem Bilde einer Dishidrosis verlaufenden Epidermophytid, Dermat. Ztschr. **53**: 692, 1928.

4. Peck, S. M.: Epidermophytiden in form post-scarlatinöser Schupungen an den Händen, Klin. Wchnschr. **8**: 1357 (July 11) 1929. Jadassohn, Werner; and Peck, S. M.: Epidermophytide der Hände, Arch. f. Dermat. u. Syph. **158**: 16, 1929.

5. Peck, S. M.: Epidermophytosis of the Feet and Epidermophytids of the Hands, Arch. Dermat. & Syph. **22**: 40 (July) 1930.

April 29, 1929, a severe recurrence having taken place during the preceding weeks, the patient was placed under indicated local treatment with short series of six weekly unfiltered one-fourth erythema doses of the roentgen ray. After a remission of several months the process again became active in November, 1929, with marked improvement by Jan. 26, 1930, after therapy identical with that already outlined. But another slight relapse set in by February 19. This, too, improved. April 21, a severe eruption broke out, but it was confined to the hands, which looked as follows:

On the dorsum of the left hand there was a nummular lesion about an inch and a half in diameter. It was irregularly oval, somewhat infiltrated and tended to central healing with a vesiculated periphery, although in its entirety the lesion scaled, crusted and was polycyclic. Fungi were easy to find in the vesicles. Smaller lesions of the same sort were present. There were also single "sago grain" vesicles on the sides of the fingers of the left hand, as well as on the back and palm. Scattered areas of superficial scaling existed, approaching the picture of dyshidrosis lamellosa sicca. Repeated microscopic examination of the scales and vesicles on the right hand as well as the scattered vesicles on the left were negative for fungi. April 21 a trichophytin test was moderately positive, after twenty-four hours. A focal reaction in the lesions on both hands appeared with crops of new scattered vesicles along the sides of the fingers during the next few days. Under intensive treatment of the primary lesion, healing of all the lesions took place.

In recapitulation, it may be emphasized that a patient with what originally, and over a period of three years, was a generalized eczematous eruption, finally, after many remissions and relapses, acquired a condition confined to the hands. One and only one of these lesions, in spite of repeated study of the rest, was found to contain fungi. These lesions flared up focally after a positive trichophytin test, beginning to heal only when the infected forms had responded to treatment. Thereafter their resolution was rapid.

Disregarding its etiology, the eruption in this patient would have to be classified as a nummular, vesicular, squamous and crusted eczema, with distinct elements on and near the digits and on the palms and soles of dyshidrotic dermatitis, or eczematized pompholyx. At the outset, the eruption, having had a tendency to generalization, would have been classified as a generalized eczema as well. In view of the ultimate observations many, if not all, of the far flung lesions must have been trichophytids. It seems likely enough, in the light both of Peck's experimental reproduction of such a syndrome and of his having isolated the epidermophyton from the circulating blood, that in this woman, too, there must from time to time have been a phytemia. To construe these phenomena as purely toxitrichophytids does not appear warranted, considering the work of Jadassohn and Peck together, and Peck alone.

A most unusual feature of the case, and indeed the one that chiefly impelled its publication, was the fact that trichophytids could arise solely on the hands from hand rather than foot infection. The only approach to this state of affairs is in Peck's case of hand and foot trichophytids associated with a hand infection. The common order of events is precisely the reverse. It is a matter of speculation just why the hands appear so much more susceptible to this form of trichophytid than any other part of the body. No ready explanation suggests itself.

The practical significance of this experience and related ones in terms of therapy is that it probably is important to ascertain in this disease which lesions are infected ones and which are trichophytids, since the parasites, fed from the former into the circulation, provoke the latter. Morphologically the two types of lesions are similar except that trichophytids are more irregularly distributed and single, on account of their hematogenous origin, while the infected lesions tend to spread peripherally. Therefore it is essential to make the microscopic differentiation so that antiseptic treatment may be applied to the proper sites with the idea of cutting off the source of trichophytid production. At first the irritation to the infected areas may actually increase the production of trichophytids, as has been clinically substantiated (Williams, Peck, Jadassohn). This soon subsides, however, as in the patient here described. Moreover, it may be emphasized that clinically this disease is what was called eczema, and formerly it would have been treated as such without avail. It is distinguished from other types of eczema, both those due to the allergic mechanism and those of unidentified origin, only with respect to the fact that the precipitant is a fungus or the toxins of such a fungus, behaving as eczematogens. It is likely enough that clearer understanding of the nature of this process may further illuminate the problem of the nature of eczema, whatever the precipitant.

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ABSTRACT OF DISCUSSION

Dr. Paul A. O'Leary, Rochester, Minn.: Contributions in the form of well studied case reports are valuable aids in crystalizing knowledge of the ringworm problem, as well as aiding in the clearing of the eczema maze. I, too, believe in the existence of a palmar trichophytid in association with epidermophytosis of the feet, and feel grateful to Williams and Bloch for having called attention to it. I also believe that pompholyx or dyshidrotic eczema is still an entity with no etiologic relationship to fungi. The hypothesis that pompholyx is a neurogenic manifestation is still tenable to me. The effect of chronic nervous exhaustion states as a factor in the production of pompholyx was forcibly demonstrated several years ago when bank failures throughout the Northwest became an everyday occurrence. Although fungi have been recovered from the blood stream, I do not believe that this finding has received as yet a conclusive interpretation. It is true that a clinical analogy can be drawn between tuberculosis, syphilis and "phytemia," as Dr. Highman calls the blood stream infections with the trichophyte. The inoculation or chancre phase, the disseminated phase and the latent period are readily seen in all three diseases. Nevertheless, the significance of the finding of the trichophyte in cultures of the blood has not proved the pathogenesis of the organism. The study of the local skin chemistry, as for example the estimation of the individual cell hydrogen ion concentration I believe will disclose more of the clinical phenomena than will cultures of the fungi from the blood stream. Trichophytosis is frequently a self-limited disease; likewise exacerbations of the primary focus as well as the appearance of palmar trichophytids are not uncommon following treatment of the original lesion. These are evidence of changes in cutaneous allergy as the result of changes in the local chemistry of the skin, rather than secondary to a generalized blood stream infection.

Dr. Joseph Grindon, St. Louis: Regarding these eruptions, trichophytids, epidermophytides, or whatever one wishes to call them, that occur on the palms and sometimes on the feet, I wish to bear out what Dr. O'Leary has said about the existence of a nervous influence. I have seen this exemplified many times. As I stated on a former occasion, it has for many years been my practice—and was before Sabouraud showed the mycotic organisms in this disorder—to administer strychnine in small doses, with great benefit to the patient, at least temporarily. There remains a question as to how much in these cases is due to what has been called anaphylaxis and allergy. Coca has come to some rather startling conclusions about those processes. He does not admit that anaphylaxis ever occurs in the human subject and is of the opinion that the term allergy should be dropped as being without meaning. I am reminded of an episode that occurred in France at a recent meeting of the Société de dermatologie, when Ravaut demonstrated a generalized eruption consequent on a yeast infection in the axilla. Milian, who was president, expressed the belief that all those things which had been called eczema might be considered as due either to contact with some irritating substance or to hematogenous conveyance of material there absorbed. Darier, commenting on that in the *Annales,* said that this conception might point a little nearer to the truth, but as to its being the truth he did not believe a word of it. He seemed to have no more respect for our conception of allergy than has Coca, for he came back to the old term "idiosyncrasy" and said that when physicians talk about allergy and anaphylaxis they have only invented a new kind of slang.

Dr. George M. MacKee, New York: The weight of scientific evidence is in favor of dermatophytid being due to sensitization to fungus products from a focus, usually between the toes. There is a question, however, whether there is any difference in the mechanism of production in dermatomycosis and dermatophytid. On the assumption that the fungus obtains its foothold between the toes, if a local eruption occurs it is because the tissue has become susceptible—allergy. This is dermatomycosis. The organisms enter the blood, tissues in other parts of the body become susceptible, and an eruption occurs. This is dermatophytid. The fact that conventional fungi are so rarely found in dermatophytid might indicate that it is due to some toxic chemical product. On the other hand, the mosaic fungus is often found in dermatomycosis and dermatophytid, especially in "pompholyx," and always in keratolysis exfoliativa. The mosaic fungus is considered an artefact by many, but it may be a degenerated or attenuated fungus, a harmless organism, a saprophyte, a weak pathogen or a strong pathogen depending on the environment—the defensive mechanism of the host. While there may be a fundamental difference between dermatomycosis and dermatophytid, it seems preferable to retain the terms at least until greater knowledge is available.

Dr. Jack W. Jones, Atlanta, Ga.: In our section of the country these cases constitute a very large group, probably the largest we have, and the hand eruptions are the bane of my existence. From the standpoint of there being a tricophytid, it has always seemed to me that if they are treated correctly these eruptions should sooner or later respond to treatment, but this has not been the experience with us. That is why after reading and hearing of the different work that has been done I am doubtful about it. In the majority of our cases after we do everything we can the condition of the hands remains the same.

Dr. Samuel C. Ayres, Jr., Los Angeles: Concerning the remarks of Dr. Jones and Dr. Highman regarding microscopic examinations, I think these can be brought together very nicely. It is my custom to check microscopically all patients to demonstrate the infected areas. By astringent preparations and the roentgen ray the noninfected areas clear. I cannot help but feel that the microscope is a most important agent in the diagnosis of these cases. Not only is each area checked microscopically on the patient's first visit, but it is checked every week or ten days until the patient is discharged. It is easy to clear them up clinically, but in many instances they are still microscopically infected. The area that might be considered clinically as normal still shows infection microscopically. I think one point not sufficiently emphasized is that there are successes and failures. Every one has his favorite method of treating but usually nothing is said about what shall be done with shoes and other wearing apparel, other than that it shall be thrown away. It has been definitely shown that fumigation with formaldehyde will kill the fungus. Patients are advised to sterilize their bedrooms and all clothing which might come in contact with the hands and feet.

Dr. Walter J. Highman, New York: I do not know whether there is such a disease as pompholyx; I think there may be. I am not partisan to fungi, I am not loyal to them, I do not approve of them, but I do not maintain that they are the only cause of an eruption that looks like pompholyx. Dr. Grindon might put me in the class with those who arraign allergy as applied in clinical terminology. The term does not make any difference; after all, people get a disease because they are susceptible to it and what susceptibility is called does not matter. If any one wants to call it anaphylaxis instead of susceptibility, it is all right so far as I am concerned. The fact that one individual gets an infection and the other does not only shows that one is sensitive and the other is not. I cannot get much worked up about whether Coca or I myself flouted the concept of anaphylaxis. What if he or I do or do not? What does it matter so long as it is known that only certain fungi can make people sick and do make them sick? I do not agree that the neurodermitides are necessarily fungous manifestations. I do know it is possible to recover the organism from the blood stream, but not always. It is not the local patch of tricophytosis that causes a widespread dermatitis but allergy, so called, or what you will, in the skin to which eczematogens arrive, a sort of percutaneous or intradermal test performed by nature itself. That is all trichophytids can be. Whether due to the organism or its toxin does not matter so long as the facts are found out. I have no time to isolate the organisms from each lesion on a patient. I do not hold any great plea for descriptive dermatology, but some things can be distinguished descriptively. A distinction can be made with some certainty between active tinea and trichophytids. I am quite sure that if there is anything at all in the doctrine of focal infections this is a good example of focal infection, and that if the foci can be controlled the far-flung disease can be controlled.

THE FUTURE OF THE DIABETIC CHILD*

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BOSTON

The twenty thousand children in the United States who today are diabetic or potentially diabetic compel us to ask the question "What does the future promise the diabetic child?" Growth, development, and duration of life are no longer the outstanding problems of the diabetic child treated with insulin. In the nineteen months ended Feb. 1, 1930, among 423 children living in that period there were only 10 fatalities, and 5 of these were due to coma untreated. The growth in height and weight was essentially normal and but one girl over 20 years of age has failed to mature.

Yet with increasing age the diabetic child who has demonstrated his ability to carry on the normal functions of childhood and youth faces a new problem in the possible transmission of his disease. The hereditary taint in the diabetic child is evident. Repeated questioning and the fact that diabetes may be latent in an adult member of the family and not appear until after it has occurred in the child have increased the percentage of heredity in our children 100 per cent. Whereas the fatal cases showed a history of heredity in 20 per cent, in the living cases the heredity has steadily risen year by year until it has reached 40 per cent.

But is the inheritance of diabetes necessarily and always a handicap? The potential diabetic type is in itself favorable. At the onset of his disease the diabetic child is characterized by precocity. His physical and roentgenologic ages are eighteen months in advance of his chronological age. His mental age is eight months in advance. Although after years of duration of the disease there is some evidence that physical growth may be retarded, the stature of the child does not fall appreciably below the standard average and, what is of more importance, mental growth continues above the normal average.

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* From the Joslin Diabetic Unit, New England Deaconess Hospital.
* Read before the New York Academy of Medicine, March 18, 1930.

Overgrowth is an almost constant characteristic of the prediabetic child. It has been reported in over 90 per cent of our own children measured within three months of onset, in 88 per cent of Ladd's diabetic children and in the majority of the children studied at the Children's Hospital, Boston, and in the seventy-one children studied by Rabinowitch. The significance of overgrowth is puzzling.

Overheight in the child, we believe, corresponds to obesity in the adult. Just as obesity need not reach extremes before the onset of diabetes in the adult, overheight need not reach extremes before onset of diabetes in the child. As to the cause of overheight one can only surmise. Overheight may be the result of optimum nutrition or infections with their subsequent gains in length. It is true that we have found that histories of recent infections are lacking, but we cannot rule out the latent results of infectious diseases. Overgrowth may be associated with hyperactivity of the other glands of internal secretion, particularly the pituitary. Since the etiology of diabetes in the child is still a mystery, the possible combination of an hereditary taint and an environment producing maximum growth must be considered.

The investigation of the pathologic changes in the tissues of the diabetic child, which may be attributed to the disease or its treatment, constitute the second problem. It would be tragic indeed to keep the child alive to be disfigured, to succumb to tuberculosis or to become crippled and blind. For evidence our entire series of patients is available, consisting of 625 diabetic children treated from the years 1898 to 1930 to show whether such tragedies are encountered. Of these children, 212 are dead and 413 are living. The group represents thirty years of medical practice and thereby offers material which is unique in the relatively large numbers of cases of long duration. The series of necessity consists of many patients in whom a variety of methods of treatment, quite different from the methods of today, have been employed. The transition of treatment has been more or less gradual, but in order that we and others interested in this problem may compare the data fairly, we have divided our living children into two groups: the 81 children whose disease began before the use of insulin was begun in our clinic, and the 332 children seen subsequently.

The skin of some of the diabetic children of both these groups has shown xanthosis. Although this is disfiguring, it is not of great importance and fortunately is remediable. This characteristic yellow pigmentation about the tissues of the mouth, the palms of the hands and the soles of the feet is undoubtedly due to the large quantities of vegetables in the diet. Xanthemia as well as xanthosis has occurred in these cases.

Xanthoma diabeticorum has proved a rare complication and has been recognized but three times in our group. In two of these cases the onset of diabetes antedated insulin. Two patients were coma offenders and in these the cholesterol of the blood was studied and found to be markedly increased. Improvement in skin lesions occurred shortly after the fat and total caloric values of the diets were decreased. The associated hypercholesterolemia also diminished but had not in the most recent analysis reached what we accept as the normal level, 230 mg. per hundred cubic centimeters.

Tuberculosis or tuberculous lesions have occurred in 10 of the total 625 children. It was present in 7 children whose diabetes began before Aug. 7, 1922, the date of our first use of insulin, and in 3 children whose onset was after that date.

The eyes of the diabetic children have so far proved invulnerable. In our only living patient with cataracts, the diagnosis was made in the seventh year of the disease, at the same time that she was found to have pulmonary tuberculosis and calcification of the vessels of the legs. Her blood also shows an increase in cholesterol. As for her diet and insulin in the past we have no idea, as evidenced by the fact that she has been in coma or near coma on five occasions. Three of the fatal children—and these were children who had never had insulin—had cataracts. It is gratifying that, of the children in whom routine examinations of the eyes have been made, but one child has had a condition more serious than muscular unbalance. The child who is the exception has retinal hemorrhages as well as cataracts.

Calcification of the blood vessels of the legs has occurred in eleven diabetic children, all of whom had onset of diabetes prior to August, 1922. The average duration of diabetes at discovery of sclerosis was seven years. The ratio of carbohydrate to fat in the diets of these patients varied from 1 Gm. of carbohydrate to 3 Gm. of fat and from 1 Gm. of fat to 3 Gm. of carbohydrate. It would be wrong to draw conclusions from these figures, because of the unreliability of most of these patients.

The cholesterol of the blood of these children with calcified arteries in the legs is presented here to add to the material already available, but it is, we consider, insufficient for conclusions. In five of these children the cholesterol of the blood was examined prior to the appearance of sclerosis. In two the cholesterol was above 230 mg.; in three it was persistently below. That hypercholesterolemia is or is not a precursor of arteriosclerosis in the child, therefore, we cannot say; nor is it evident from our data available at the present time that the presence of cholesterol in the blood over a period of years is harmful. Twenty-six of 100 children without obvious disturbance of fat metabolism such as coma or xanthoma had percentages of cholesterol of the blood at one or another analysis above 230 mg., yet in but four of these have complications occurred up to date. These complications were cataracts, tuberculosis and arteriosclerosis.

The average proportion of cholesterol in our group was 212 mg. per hundred cubic centimeters. This includes specimens of blood examined both in the fasting and in the postprandial states. Twenty children recently examined showed cholesterol above 230 mg., but in only fourteen of them is the cholesterol not approaching normal levels.

[illegible] we know that the complications associated with diabetes in the adult can occur in the child, in our own experience we have found that it is the diabetic child treated with the inadequate methods of yesterday who has developed cataracts and arteriosclerosis.

The adequate treatment of the diabetic child is a most difficult problem and tests the skill of any physician. The difficulty lies not so much in the severity of the disease as in the four variables that exist. Of these, the first is the reliability or nonreliability of the child, second is the emotional stability, third the variability of exercise, and fourth the inevitability of intercurrent infections.

Adequate treatment, we believe, implies a diet, first, in which the caloric value is such that growth and development neither exceeding nor falling below normal will occur, and, secondly, in which the partition of carbohydrate, protein and fat is so adjusted that after years of treatment it will neither produce injurious effects on the various bodily system nor increase the severity of the disease. It may be true and probably is true that several possible dietetic combinations of carbohydrate, protein and fat will answer these requirements. We can only say from our experience that a diet in which the prescribed caloric value was at least 50 per cent above the basal metabolism and one in which at least 25 per cent of the total calories were in the form of carbohydrate, thus presupposing the use of insulin, and from 10 to 15 per cent in the form of protein, has been found to answer the first two of the three requirements.

Our children with the longest duration of treatment are the children treated by Dr. Joslin in the Allen era with few calories and relatively low quantitites of carbohydrate. These children have gained tolerance for carbohydrate. This method of treatment was therefore not injurious to the pancreas and it kept alive a group of fifty diabetic children, whereas children treated by other methods died. Stunted growth occurred in the younger children as the result of caloric insufficiency. Today when from 25 to 50 per cent of the total calories are taken in the form of carbohydrate and when the prescribed diet is not less than 50 per cent above the basal metabolism, normal rates of growth occur and increasing severity of diabetes after the initial stabilization is the exception rather than the rule in the five-year case. The year 1930 represents the seventh year of insulin. One may therefore institute comparisons between the preinsulin children who began to show complications at 7 years and our children who have had insulin seven years. There are fifty-nine of the latter cases in our group. Only ten of these have had roentgen examinations of the legs. None have shown evidence of sclerosis, whereas one in three of the preinsulin children studied had evidence of calcification of the vessels of the legs.

The former advocates of high fat and high caloric diets report normal rates of growth in diabetic children but state that the disease becomes increasingly severe. Individual interpretation of data, however, must be considered as there are no established rules for measuring gains or losses of tolerance. A full decade of time will be necessary to tell which combination of diet, high carbohydrate, a moderate amount, or a low carbohydrate diet, will best answer all the requirements during the course of years. We believe that, until we have the evidence, it is far safer not to go to extremes, neither to adopt the low carbohydrate-high fat diet, which appears to lower tolerance for carbohydrate, nor to adopt the reverse diet, which fails to protect and spare the pancreas which is diseased; and, above all, we would avoid high calories to prevent excess of growth, which seems to be a precursor of diabetes in the child.

The diabetic child has taught us lessons of great importance: first, that heredity is an undoubted etiologic factor in diabetes; second, that the child affords new evidence to the theory that overnutrition is a precursor of diabetes; and, third, that cataracts and arteriosclerosis can occur in pure diabetes under the age of 20 years. Nevertheless the possibilities of combating the taint of heredity and an environment producing maximum growth are apparent while the evidence of the decreasing severity of diabetes, the absence of its complications in the child treated with insulin from the very onset, and the actual lack of organic disease of the pancreas offer limitless hope for the future of the diabetic child.

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CHANGES IN THE RESPIRATORY MECHANISM FOLLOWING PHRENICECTOMY

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In the past year the literature has been replete with reports stressing the importance of phrenicectomy in the treatment of pulmonary tuberculosis. It has been observed that phrenic neurectomy is not attended with any great danger in man.

Lemon,[1] in a series of experiments on normal dogs, concluded that either unilateral or bilateral phrenicectomy was attended with slight risk and did not produce demonstrable impairment of function in general or of respiratory function in particular. Compensation was sufficient to overcome the loss in function of half or the whole diaphragm of the dog, and the animal was able to carry on its usual activities without embarrassment or dyspnea.

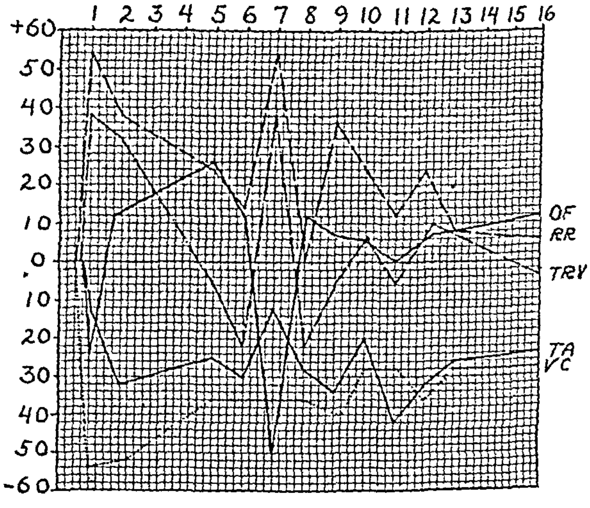

Chart 1.—Changes of the respiratory mechanism of a patient in group 1: In charts 1, 2 and 3, *O F* indicates oxygen fraction; *R R*, rate of respiration; *T R V*, total respired volume; *T A*, tidal air; *V C*, vital capacity. The figures on the top of each chart represent the days following operation. The figures at the left side represent the percentage increase or decrease of the oxygen fraction, rate of respiration, tidal air and vital capacity.

Andrus[2] made studies of the changes in the cardiorespiratory mechanism in dogs, following hemiparalysis of the diaphragm. The experimental data collected were summarized as follows: 1. The pulse and respiratory rates increased about 10 per cent. 2. There was a moderate increase (about 25 per cent) in the amount of blood flowing through the lungs per minute, and an increase of about 15 per cent in the pulse volume. 3. The tidal air volume and respiratory volume were decreased by about 20 and 15 per cent, respectively.

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[1] Lemon, W. S.: Efficiency of the Mechanical Factors of Respiration, Am. J. M. Sc. **177**: 319 (March) 1929.

[2] Andrus, W. D., and Wilson, J. D.: The Effects of Closed Pneumothorax and Phrenicectomy on the Cardiorespiratory Function, Arch. Surg. **19**: 1205 (Dec., pt. 2) 1929.

My object in the present study was to note the changes in the respiratory mechanism following phrenicectomy in man. Observations were made before and after operation on a group of twenty patients with advanced unilateral pulmonary tuberculosis. They were all afebrile but on strict bed rest. Before each study they fasted twelve hours. The McKesson recording metabolor, which is based on the closed circuit method for the determination of the respiratory exchange, was used. Here the subject rebreathes oxygen from a closed space, the carbon dioxide being absorbed by soda lime. Tracings were made of each patient's breathing over a period of six minutes. The patient's respiratory curve was recorded in red ink on a paper ruled in one direction, in minutes and subdivided into tenths; and in the other, in liters and subdivided into tenths. By the rulings of the chart one is able to read directly the volume of tidal respirations, the rate per minute, and the vital capacity, in addition to the rate of oxygen absorption. These readings were all corrected for changes of temperature and barometric pressure. The basal metabolism was calculated according to the formulas of Du Bois, while the total respiratory volume was determined by the rate of respiration times the tidal air volume multiplied by the time. Two or more tracings were recorded in each case before operation in order to establish a base line. Following the phrenicectomy, records were made at intervals of two days until the vital capacity started to return to what it was before operation, and then biweekly until the vital capacity reached its preoperative level. The first eight days after operation presented the most essential changes. These are reported and illustrated by graphs.

In none of these cases was there any appreciable change in the pulse rate or basal metabolic rate as a result of the operation.

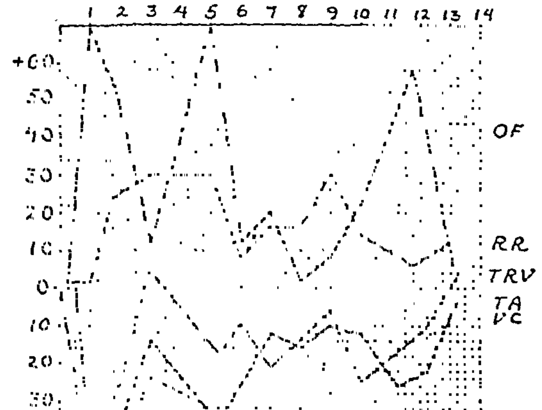

Chart 2.—Changes of the respiratory mechanism of a patient in group 2.

The vital capacity is the maximum amount of air that can be inspired at the end of forced expiration. Garvin, Lundsgaard and Van Slyke[3] have found the vital capacity definitely reduced by pulmonary tuberculosis. In the group of patients studied, the vital capacity ranged before operation from 42 to 64 per cent, the average being 50 per cent of the theoretical normal as judged by Myers'[4] standing height standards. The average decrease in the vital capacity of all patients following phrenicectomy was 32.6 per cent. The maximum decrease occurred within the first forty-eight hours. In five of the patients the vital capacity decreased to 23 per cent of the normal theoretical amount. In none of the patients was there any evidence of cyanosis or dyspnea. The vital capacity returned to what it was before operation within from two to eight weeks.

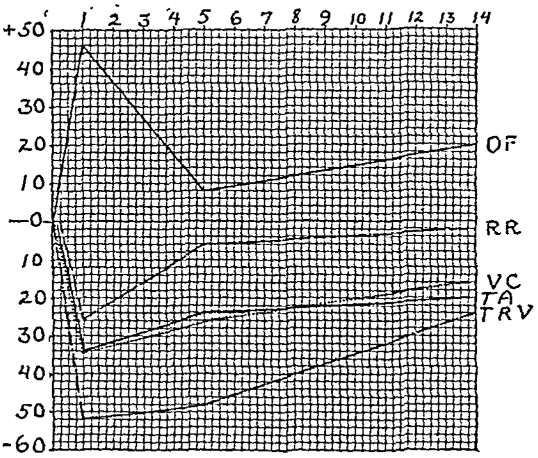

Chart 3.—Changes of the respiratory mechanism of a patient in group 3.

The tidal air is that volume of air which is inspired and expired during normal respiration. In all but one patient it decreased. The oxygen consumption remained practically unchanged. Considering the decrease in the vital capacity and tidal air while the oxygen consumption remained practically unchanged, some compensating mechanism is obviously necessary to provide for the unaltered oxygen supply. Yates[5] found a constant relationship between the volume of ventilated air, the area of alveolar epithelium, the expanse of capillary endothelium and the amounts of blood needing aeration. This relationship depends on the utilization of the inspired air. It is the ratio expressed in percentage of the oxygen retained to the total respired air and is designated in this paper as the oxygen fraction. This compensation for the unaltered oxygen consumption took place in three different ways. In six patients the compensation for the decreased tidal air (10.5 per cent average) was achieved by an increase in the respiratory rate only. This increase was 28 per cent in average. Since the oxygen fraction decreased (13 per cent average) and the total respired volume increased 11 per cent, this means that these patients performed more respiratory labor while utilizing the inspired air less efficiently.

In seven patients the compensation was achieved by an increase of the respiratory rate (average 22 per cent) and by a better utilization of the inspired air. A larger percentage of oxygen was retained from the respired air. The oxygen fraction increased 28 per cent in average. The tidal air was much decreased in this group (average 35 per cent).

In seven patients the compensation was achieved only by a more efficient utilization of oxygen. The average increase in the retained oxygen fraction was 35 per cent. This better utilization of the inspired air accomplished the necessary compensation without increased respiratory labor. The average decrease of the tidal air in this group was 29 per cent.

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[3] Garvin, A.; Lundsgaard, C., and Van Slyke, D. J. Exper. Med. **27**: 87 (Jan.) 1918.

[4] Myers, J. A.: Vital Capacity of the Lungs, Baltimore, Williams and Wilkins, 1925.

[5] Yates, J. L.: Intrathoracic Therapy, Arch. Surg. **10**: 477-595 (Jan., pt. 2) 1925.

COMMENT

The most marked changes in the respiratory mechanism took place within the first eight days following hemiparalysis of the diaphragm. The oxygen consumption remained practically unchanged. With the reduction in the tidal air and vital capacity, some compensating mechanism is obviously necessary to provide for the unaltered oxygen supply.

In group 1 during the period of compensation a greater volume of air was ventilated in order to obtain the required amount of oxygen. The total respired volume increased 11 per cent. This adaptation was achieved through the increased respiratory rate. The respiratory labor was increased.

In group 2, the compensation was achieved by a better utilization of the inspired air. A larger percentage of oxygen was retained from the respired air, the increase being 28 per cent in average. Though there was an increase in the respiratory rate (average 22 per cent), the balance was maintained by a decrease in the respired air (average 22.5 per cent). The respiratory labor was not increased.

In group 3, the compensation was achieved only by a more efficient utilization of oxygen. The average increase in the retained oxygen fraction was 35 per cent. This better utilization of the inspired air accomplished the necessary compensation while the respiratory labor was decreased.

In this series of patients the respiratory labor was found to increase in 30 per cent and to remain unchanged or to decrease in 70 per cent following phrenicectomy.

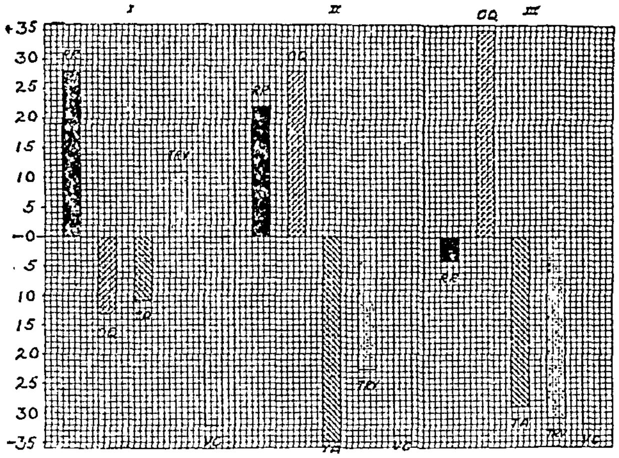

Chart 4.—Behavior of the respiratory mechanism in the three groups. The figures at the top indicate groups 1, 2 and 3. The figures at the left side indicate the percentage increase or decrease of the rate of respiration, total respired volume, tidal air, oxygen quotient and vitay capacity. *O F* or *O Q* indicates *oxygen fraction*; *R R, rate of respiration*; *T R V*, total respired volume; *T A*, tidal air; *V C*, vital capacity.

It is probable that the better utilization of the inspired air in groups 2 and 3 depends on the physical theory of respiration. The physical theory of respiration assumes that the gaseous exchange in the lungs and in the tissues takes place in accordance with the physical laws of diffusion of gases. If a permeable membrane separates two volumes of any gas or two solutions of any gas at different pressures, the molecules of the gas will pass through the membrane in both directions until the pressure is equal on the two sides.

SUMMARY

Studies of the changes in the respiratory mechanism following phrenicectomy were made on twenty patients. The data collected may be thus summarized:

1. The vital capacity decreased in all patients.
2. In all but one patient the tidal air decreased.
3. The oxygen consumption remained practically unchanged.
4. This compensation took place in three different ways: (*a*) In group 1 the compensation was achieved by an increase in the respiratory labor only. (*b*) In group 2 the compensation was achieved by a better utilization of the inspired air with no change in the respiratory labor. (*c*) In group 3 the compensation was achieved only by a more efficient utilization of oxygen with a decrease in the respiratory labor. There was no evident correlation between the extent and the pathologico-anatomic type of the lesions and the mechanism of compensation following the operation.

ENDOMETRIOSIS

A REVIEW BASED ON THE STUDY OF ONE HUNDRED AND EIGHTEEN CASES *

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AND
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For many years endometrium-like tissue has been recognized as occurring in the ovary, on the surface of the uterus, in the rectovaginal septum, in the umbilicus and elsewhere in the pelvis. To Sampson, however, belongs the credit for elucidating the pathologic nature and life history of the condition. In typical instances this tissue is histologically and functionally identical with the endometrium; its reaction to menstruation is evidenced by swelling, pain and tenderness at the menstrual periods as the result of the escape of blood into the glandular spaces.

The formation of decidua in these misplaced glands has been shown to occur during intra-uterine pregnancy, and atrophy of these formations commonly follows cessation of ovarian function. On these facts are based the interpretations of the symptomatology and the principles underlying treatment.

SYMPTOMATOLOGY

The literature is replete with contributions dealing with the etiology of endometriosis, but it is remarkedly poor in those presenting a comprehensive analysis of a comparatively large series of cases. The conclusions of this paper are drawn from a study of 118 cases of endometriosis admitted to the gynecologic department of the Hospital of the University of Pennsylvania.

Because of wide variation in the pathologic manifestations, discussion of the symptoms necessitates division into three main groups: (1) intraperitoneal endometriosis, which is the most common manifestation, including lesions of the ovaries, tubes, uterus, pelvic peritoneum and intestines; (2) adenomas of the rectovaginal septum, and (3) transplants or fistulas located in the umbilicus or laparotomy scars.

Intraperitoneal Endometriosis.—The symptoms are not uniform because of the frequency of complicating pathologic changes in the pelvis. Small implants on the ovary, uterus, intestines or the peritoneum of the culdesac are often symptomless, but with the development of large ovarian hematomas, which are invariably densely adherent, or with invasion of neighboring structures, a clinical picture is presented that often permits of a definite diagnosis.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

TABLE 1.—*Location of Endometrial Lesions in 118 Cases*

Ovary		110
Unilateral	63	
Bilateral	47	
Rectovaginal septum		6
Umbilicus		2*
Laparotomy scar		1

* In one of the umbilical cases there was also ovarian involvement.

Excluding the cases of symptomless implants discovered at the time of operation for some other condition, 109 patients with ovarian endometrioma have been subjected to operation and one patient is under observation.

Associated Pathologic Manifestations.—The presence of complicating disease is a striking feature of this series. Uterine myomas were found in 55.4 per cent, a chronic salpingitis in 20 per cent, and adherent retroflexion in 14.5 per cent. King[1] reports myomas in 22 per cent, adherent retroversion in 21 per cent and evidence of previous inflammation in 39.7 per cent. In Smith's[2] series, myomas were present in 41.6 per cent and adherent retroversion was present in 25.8 per cent.

TABLE 2.—*Associated Pathologic Manifestations in Ovarian Endometriosis*

Myoma uteri:		
Uncomplicated	44	55.4%
With pelvic inflammatory disease	10	
With retrodisplacement	4	
With carcinoma of cervix	1	
With carcinoma of other ovary	1	
With corpus lutein cyst of other ovary	1	
Ovarian cyst:		
Pseudomucinous	1	
Parovarian	2	
Retrodisplacement of uterus	12	
Chronic pelvic inflammatory disease	12	
Adenomyoma uteri	4	
Omental cyst	1	
None	25	
	118	

Age Incidence.—With but rare exceptions, the lesion occurs during the years of menstrual function. Our youngest patient was 22 and the oldest 60. Only two patients had passed the menopause. The incidence by decades is as follows: third, 18.6 per cent; fourth, 49.1 per cent; fifth, 25.4 per cent, and sixth, 6.8 per cent.

TABLE 3.—*Age Incidence of Endometriosis in 118 Cases*

Youngest	22
Oldest	60
By decades:	Per Cent
20-30	18 6
30-40	49 1
40-50	25.4
50-60	6.8

Only two patients had passed the menopause.

Sterility.—The extensive alterations resulting from the lesion itself as well as the complicating abnormalities render sterility a prominent symptom. Seventy per cent of our patients were married, with a sterility incidence of 40.9 per cent. Of those patients who had borne children, the average interval elapsing since the birth of the last child was 9.5 years. In Donald's[3] series, 40 per cent were sterile and only one patient had given birth to more than four children. Smith reports sterility in 20.6 per cent of 159 cases and Shirer[4] noted this symptom in 84.2 per cent of his series of 30 cases.

Menstrual Anomalies.—Ovarian endometriomas per se produce no uniform alteration in menstruation.

TABLE 4.—*Study of Fertility in Married Patients*

	Number	Years	Per Cent
Patients studied	83	..	....
One or more pregnancies	..	..	59.1
Sterile	..	..	40.9
Patients giving length of time since last pregnancy	39	..	....
Variation of interval	..	1 to 25	....
Average interval of sterility	..	9.5	....

A summary of our observations is given in table 5. The menorrhagia group comprised forty-eight patients, and in thirty-two of these uterine myomas were present, so that in only sixteen might the symptoms be ascribed to an ovarian dysfunction. King found that in 75 per cent of his patients an existing menorrhagia could be definitely accounted for by an associated uterine lesion. Donald, Smith and Shirer also are reluctant to attribute menstrual irregularities to the ovarian involvement. It seems justifiable to conclude, therefore, that profuse menstruation is usually a symptom of the complicating lesion rather than of the endometrioma itself.

Dysmenorrhea.—This symptom is commonly present, although we found that 40 per cent of our patients gave no history of menstrual pain. Dysmenorrhea dating from puberty with no increase in severity nor alteration in type was noted in 11.2 per cent; 49.1 per cent gave the history of an acquired or increasing dysmenorrhea, the pain being premenstrual in type and persisting through the first day or two of the flow. With invasion of the bladder, rectum or rectovaginal septum, pain and disturbed function occurred only at the menstrual periods or became greatly exaggerated at this time.

TABLE 5.—*Incidence of Menstrual Disturbance in Connection with Endometrioma*

	Per Cent
No disturbance	41.5
Menorrhagia	44.1
Metrorrhagia	8.4
Scanty flow	2.5
Amenorrhea	1.7
Postmenopausal amenorrhea	1.7

Donald found dysmenorrhea present in 70 per cent of his patients, being of the acquired type in 50 per cent. Smith reports this symptom in 60.5 per cent of his series and King in "over 50 per cent" of his cases. Of King's patients who complained of rectal pain during menstruation, an endometrioma of the rectovaginal septum was present in 75 per cent.

Intermenstrual Symptoms.—The majority of our patients did not complain of symptoms referable to the pelvis between the periods. In 45 per cent, however,

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1. King, W. W.: Brit. M. J. 2: 573 (Sept. 27) 1924.
2. Smith, G. V.: Am. J. Obst. & Gynec. 17: 806 (June) 1929.
3. Donald, A.: Brit. M. J. 1: [illegible], 1922.
4. Shirer, J. W.: Canad. M. A. J. 18: 151 (Feb.) 1928.

there was intermenstrual discomfort or actual pain in the lower part of the abdomen or pelvis, and lumbosacral backache was a frequent complaint. King found abdominal pain in 63 per cent of his patients, and almost without exception exaggeration occurred at the time of menstruation.

Dyspareunia.—Our cases have not been analyzed from the standpoint of dyspareunia, but this complaint has been frequent. Donald reports dyspareunia in 57 per cent of 40 cases and King in 8 per cent of the patients who were questioned in this regard.

Table 6.—*Dysmenorrhea in 116 Cases of Endometriosis*

	Per Cent
Always painful	11.2
No menstrual pain	39.6
Acquired or increasing dysmenorrhea	49.1

DIAGNOSIS

The subjective symptoms of intraperitoneal endometriosis show wide variations in degree as well as in kind. They are dependent on several factors, chief among which are the extent of the lesion, particularly invasion of adjacent structures, and the nature of the complicating pathologic changes. Exaggeration of pain or its occurrence only at the time of or shortly before menstruation is characteristic; but this sequence of events may be absent in a large percentage of cases. The clinical picture as a whole rather than isolated symptoms points to the correct diagnosis. Such a symptom complex may be summarized as follows: (1) age, between 25 and the menopause; (2) sterility, absolute or relative; (3) abnormal menstruation, usually menorrhagia; (4) dysmenorrhea of the acquired type; (5) dyspareunia; (6) sacral backache; (7) intermenstrual lower abdominal pain with increased discomfort at the time of menstruation; (8) pain in the rectum or bladder which bears a distinct relationship to menstruation.

Table 7.—*Symptoms as Reported by Several Authors*

Author	Sterility	Acquired Dysmenorrhea	Menstrual Disturbances	Frequency of Myoma
Donald	40%	50%	Ascribed to associated lesions	55.4% 22.0%
King	"Common occurrence"	"Over 50%"	Usually due to associated lesions	
Smith	20.6%	60.5%	None characteristic	41.6%
Shirer	84 2%	"Practically all"	None characteristic	
Keene and Kimbrough; present series	40.9%	49.1%	None characteristic	Not stated 55.4%

Objective observations likewise vary with the extent and nature of the lesion, but in the presence of ovarian endometriomas, well developed peritoneal implants, or, more commonly, a combination of the two, the observations are fairly uniform and characteristic. On one or both sides of and blending into the partially fixed uterus is a tender, densely adherent, semisolid or firm adnexal mass. Commonly the uterus is in adherent retroflexion or contains one myoma or more. Typical of the lesion are nodulations in the culdesac which are more readily detected by rectal palpation. In our experience, the rectal mucosa overlying the nodulations has invariably been normal in appearance and never adherent to them, an important diagnostic point in differentiating from a malignant growth. Peritoneal implants in the culdesac without gross ovarian lesions give evidence of their presence by an indefinite sense of thickening, by resistance or by nodulation combined with the uterine symptoms already mentioned.

Symptoms referable to the bladder or rectum should be investigated by appropriate methods of examination. The proctoscopic demonstration of a normal rectal mucosa is of diagnostic value. In two of our patients, cystoscopic examination revealed the nature of the pelvic lesion. At the base of the bladder, small vesicles were seen in the center of an intensely reddened and thickened area of mucosa. A few of these vesicles presented a distinctly blue discoloration simulating miniature blue dome cysts of the breast.

Rectovaginal Endometriosis.—Invasion of the rectovaginal septum may exist as an independent lesion, but more commonly it is found in association with similar involvement of the ovary. The small isolated growth may run a symptomless course, but with increase in size and depth of invasion the rectum is encroached on, and pain results which is coincident with menstruation and is relieved during the intermenstrual period. In the six cases that have come under our observation, bleeding from the vagina or rectum has not been present, but this may occur and, as with pain, coincides with the menstrual epoch. The involvement may be so extensive as partially or completely to occlude the rectum or the terminal segment of the ureter, giving rise to symptoms indicative of such an obstruction.

Endometriosis of the Umbilicus and Laparotomy Scars.—Two of our patients presented typical endometriomas of the umbilicus. In one there was an extensive similar involvement of both ovaries and the culdesac. Of interest is the fact that there was no evidence of transplants in the peritoneum of the anterior abdominal wall. In the second case of umbilical involvement, operation showed the pelvic organs to be normal.

Endometriosis of a laparotomy scar was present in one patient, having developed two years subsequent to ventrifixation. The invasion affected the entire thickness of the abdominal wall, forming a tumor 5 by 5 cm. in diameter, and pain, swelling, and discharge of blood accompanied each menstrual period. Primary adenomas of the umbilicus, implantation growth in laparotomy scars and adenomas in the groin present similar clinical pictures, the characteristic symptoms common to all being pain and swelling during the menstrual periods. More rarely there is a periodic discharge of blood from these nodules which is coincident with menstruation. The implantation adenomas are usually attached to the fascia; therefore, during the earlier stages of development they are deeply placed and are recognized as tender, somewhat fixed masses along the laparotomy scar which, on palpation, closely simulate an incarcerated omental hernia. The more superficial growths, or those primarily of umbilical origin, may present a bluish discoloration and give the appearance of a chronic inflammatory thickening.

The periodic discharge of blood from the umbilicus of a patient who has had no previous operation is pathognomonic of an adenoma of the endometrial type. As a postoperative manifestation, on the other hand, such a deduction is not warranted, particularly in the presence of a sinus unassociated with definite nodulation. A true fistula may exist in the tract leading to some structure in the pelvis such as the uterus, ovary or tube which is the source of the bleeding. From the standpoint of appropriate surgical treatment, the differentiation between the bleeding of a superficially placed adenoma and that of an intraperitoneal organ is of paramount importance.

Three of our patients presented a menstruating sinus of the abdominal wall, two of these following cesarean section and one following an operation, the nature of which is unknown. One of these healed spontaneously following the discharge of a silk ligature. The other two patients were operated on; in one the internal opening was the uterine cavity, and in the other it was the outer end of the right fallopian tube.

As an aid in demonstrating the depth and, possibly, the internal opening of the tract, we would suggest a roentgenogram of the fistula and uterus after injection with iodized oil. At the time of operation we have found the injection of an aqueous solution of methylene blue (methylthionine chloride U. S. P.) a valuable aid in visualizing the course and origin of the fistulous tract.

TREATMENT

Ovarian function is essential to the activity and proliferation of all lesions included under endometriosis. Conversely, cessation of activity and progressive atrophy follow ablation of this function. Exceptions to this sequence of events are rarely encountered. Hence the principles of treatment must be based primarily on these established facts, whether in the form of surgical intervention or of irradiation. Being essentially a disease of comparatively young women in whom ovarian conservation is desirable, the decision as to proper treatment may be a perplexing problem.

Only too often radical measures must be adopted, but we are convinced that, whenever possible, it is wiser to err on the side of conservatism. We believe the following results of conservative measures warrant this conclusion: In forty-eight patients, one or both ovaries were conserved and only two have had subsequent pelvic disease; one developed a retention cyst of the conserved ovary a year later, and in the other a symptomless implant was discovered in the vaginal vault six months after operation. In twenty-one patients whose menstrual function was preserved, slight irregularity in bleeding occurred but once. Of fourteen married women in whom the child-bearing function was preserved and who were operated on a year or more ago, normal pregnancy has occurred in 28 per cent.

Table 8.—*Treatment of 109 Ovarian Cases*

	Number
Hysterectomy and bilateral salpingo-oophorectomy	58
Bilateral salpingo-oophorectomy	2
Unilateral oophorectomy and hysterectomy	19
Unilateral oophorectomy	13
Resection of cysts	8
Unilateral oophorectomy and resection of cyst of opposite ovary	4
Unilateral oophorectomy and cauterization of opposite ovary	2
Unilateral oophorectomy, cauterization of opposite ovary and hysterectomy	1
Exploratory laparotomy	1
No operation (young women with mild symptoms)	1

Into the group amenable to conservative measures fall the smaller ovarian adenomas that can be readily excised and the minute superficial implants that are easily destroyed by cauterization. The peritoneal implants are small, symptomless and increase slowly in size. Hence no treatment is necessary.

Unfortunately, radical procedures are required in many cases. Large ovarian endometriomas are invariably densely adherent, so that their liberation is attended by such injury to the ovary, uterus or both that excision of the affected organ is imperative. The ovaries may present only minor lesions or, more rarely, may be normal, yet extensive endometrial invasion of the rectum, sigmoid or bladder has produced decided impairment of their function. Here, again, nothing short of a bilateral oophorectomy will suffice. In the presence of such invasion, excision of the diseased area is rarely necessary. Incident to cessation of ovarian function a gradual regression occurs; this is a slow process, which often requires months for its completion. Advantage should be taken of this atrophic process in the treatment of intestinal obstruction secondary to adenomatous invasion. If the obstruction is complete, it is wise to combine temporary colostomy with bilateral oophorectomy. Should the patient's condition be such that the combined operation is hazardous, the obstruction should be relieved by a colostomy with subsequent oophorectomy or irradiation, depending on the extent and nature of the pelvic condition.

Table 9.—*Types of Treatment of Rectovaginal Septum and Umbilical Endometrioma*

	Number
Rectovaginal septum	6
With x-rays	3
No treatment	3
Umbilical cases	2
Excision of umbilicus only*	1
Excision of umbilicus combined with hysterectomy and bilateral salpingo-oophorectomy †	1

* Pelvic organs were normal.
† Both ovaries were extensively involved.

Four patients in our series presented symptoms of chronic, partial intestinal obstruction due to endometrial invasion of the rectum or sigmoid. In one, the lesion was mistaken for carcinoma and resection was performed, while in three, complete relief followed bilateral oophorectomy. A similar result after ovarian excision was obtained in a case of invasion of the bladder, while in a second similar case the endometrial invasion of the bladder regressed but a carcinoma developed subsequently. It is noteworthy that the carcinoma originated from the bladder mucosa and not from the endometrial nodules.[5]

Sixty of our patients with ovarian lesions were treated by operations including total ovarian ablation, while in forty-eight, one or both ovaries were conserved. One mortality occurred in the radically treated group but the remaining 98.3 per cent of these patients have had no evidence of recurrence. Of the group in which ovarian function was conserved, 95.8 per cent were entirely relieved by the operation and the remaining 4.2 per cent were greatly improved.

Read and Roques [6] reported a cure in 71.4 per cent of thirteen patients treated conservatively and in 77 per cent of those in whom both ovaries were removed. Smith found the conservative operation entirely successful in 67.5 per cent and the radical in 100 per cent.

Recurrence of symptoms may follow conservative measures but the lesion is of slow growth and the advantages of continued menstruation as well as the possibility of subsequent childbirth offset the relatively slight risk of such recurrence.

Surgery is the procedure of choice in the treatment of symptomatic intraperitoneal lesions, and irradiation, whether by radium or the x-rays, should be resorted to only in rare instances. Large ovarian endometriomas with their grumous content, dense adhesions and the uterine disease that is commonly present certainly belong in the surgical domain. Conservation of ovarian and uterine function should be the aim whenever feasible and this can be accomplished often by surgery and never by irradiation, since a menopausal dose is required if regression is to follow.

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[5] Heaney, N. S.: Tr. Am. Gynec. Soc., 1926.
[6] Read, C. D., and Roques, F.: Proc. Roy. Soc. Med., Sect. Obst. & Gynec. 22: 1441, 1929.

Isolated nodules in the rectovaginal septum or an easily accessible area of multiple nodulations may be excised. When the septal invasion is more extensive and is associated with gross ovarian or uterine lesions, or both, we prefer a bilateral oophorectomy and hysterectomy, feeling assured that we can anticipate with certainty a gradual regression of the septal lesion. Often the nodules are situated just behind the cervix, which is fixed in a high position, making excision a difficult as well as hazardous procedure. Unless symptoms directly referable to the lesion are present, we see no indication for excision or any other form of treatment, merely keeping the patient under observation. At present, three such cases are under our care, and as yet there has been no indication for treatment. Should doubt exist as to the exact nature of the growth, biopsy is indicated.

Rectovaginal adenomas which are not associated with demonstrable ovarian lesions and which are producing severe rectal pain, bleeding, backache or partial occlusion can be successfully treated by radium or the x-rays, but the desired results require a menopausal dose. We have used roentgen irradiation in three patients with relief from pain and gradual atrophy of the growth in each case; under such circumstances irradiation is employed for its effect on ovarian function and not with the idea of directly affecting the adenomatous growth. We have had no experience with direct radium implantation, but the treatment does not seem logical and the production of a rectovaginal fistula is certainly not a remote possibility.

Wide excision is the only treatment applicable to primary endometriosis of the umbilicus as well as secondary transplants in the groin and laparotomy scars. A postoperative sinus which discharges blood at the time of menstruation should be carefully investigated to determine whether it is a superficial sinus or a true fistula leading to an intraperitoneal organ. In the latter case, complete excision of the fistulous tract and appropriate surgical treatment of the involved organ are essential to cure.

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ABSTRACT OF DISCUSSION

Dr. Thomas S. Cullen, *Baltimore:* The subject of endometriosis or adenomyoma has been of especial interest to me for more than thirty years. As has been pointed out today, there is no doubt that the diagnosis of adenomyoma of the uterus can be made in a large number of cases. It is perfectly true that in these cases there is normal endometrium, but there are little rivers of mucosa running all through the diffuse myoma of the uterus, and at the menstrual period there is a tremendous amount of increased tension giving rise to grinding-like and severe pain. At the period, in addition to the blood from the endometrium, blood comes from all the tributaries scattered throughout the uterine walls. In the majority of these cases of adenomyoma there is also a definite tendency toward individual myomatous nodules, which may be very small. Quite frequently there are adhesions. Naturally, in these cases the treatment is supravaginal hysterectomy. As has been mentioned, conservatism is important in those cases in which the endometrial nodules occupy small areas in the ovary. Often, when the process is an early one, portions of both ovaries can be saved. A valuable point in the technic of ovarian suture is the use of very small needles and of delicate catgut. I have found that equally important is the use of a continuous suture. Often only one continuous suture is necessary and only one knot instead of a series of knots. I have had quite a number of cases of adenomyoma of the umbilicus. This is a rare condition, and in the majority of these cases a diagnosis can be made from the little reddening of the umbilicus at the menstrual period, and sometimes there is an escape of blood from the navel at this time. The question of adenomyoma or endometriosis of the round ligament has interested me considerably, because the first case on record came from our operating room, about 1896. When there is a nodule directly back of the cervix—very small and with no induration on either side—one can say with almost absolute certainty that adenomyoma of the rectovaginal septum exists. Sometimes, as the process progresses, there is an extension laterally with involvement of the ureters. In such cases there is pain in one or both kidney regions at the period. I have seen the process so extensive that the ureters literally had to be tunneled out of the adenomyomatous tissue and lifted up and sutured along the side of the pelvic wall to avoid subsequent constriction.

NARCOSIS AS THERAPY IN NEUROPSYCHIATRIC CONDITIONS*

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By narcosis I mean a state of deep sleep or unconsciousness, more or less prolonged, and quite rapidly induced by means of drugs; a condition similar to the state of general anesthesia necessary for surgical operation, but not as profound.

There is reported herewith the effect of narcosis in certain mental states, and its use as a therapeutic measure in the clinical management of various neuropsychiatric conditions.

Before taking up the conditions in which deep sleep has been a decidedly beneficial therapy, I wish to emphasize, what seems quite unnecessary, the essential need of sleep in man and animal as well. Sleep is a biologic reaction of defense on the part of the animal organism against fatigue. Any disturbance of this natural cycle is attended with grave results. The continuous loss of sleep over a period of from five to seven days is incompatible with life. In all probability, the phase of sleep in the normal cycle represents a period of cellular rest, during which time the metabolic processes are directed toward building up a storehouse of energy for subsequent expenditure. Without such a phase in the life cycle of a cell, exhaustion and even death occurs. In short, sleep is essential to maintain life.

Disordered sleep is a common manifestation of nervous disorders. In certain psychoses and states of mental excitement the absence of sleep adds to the gravity of the situation. With all these things in mind, we, at the University of Wisconsin, have been particularly interested in such measures as would bring about periods of sleep without subsequent depression. We have sought for means of inducing states of mental and physical relaxation such as are observed in normal sleep, hoping thereby to favor the natural restorative processes.

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* Read before the Section on Nervous and Mental Diseases at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

We have felt urged to meet in a more positive and helpful way some of the difficult situations that so frequently present themselves to the neuropsychiatrist. These are the violently disturbed cases, especially the extreme instances of continued psychomotor unrest observed in the manic, catatonic excitement, and the agitated depression of the involutional period; those cases in which the commonly used hypnotics are ineffectual, and in which hydrotherapy usually becomes a means of mere mechanical restraint. And, finally, we hope to prevent, if possible, what so frequently happens in these cases of great excitement, the rapid physical decline and exhaustion with terminal pneumonia or death from cardiac failure.

Following our earlier experience in the use of narcosis in these clinically serious cases, we began to apply these principles to the milder cases in which disordered sleep was essentially the distressing symptom, particularly those cases associated with the psychoneuroses. Further, we have used our method in the convulsive states—especially status epilepticus, eclampsia and tetanus. The other conditions treated will be mentioned later.

Anhydrous sodium iso-amylethyl barbiturate is a white crystalline substance which decomposes rapidly if allowed to stand in solution. Page and Coryllos[1] prepared this sodium salt and were the first to use the drug as an anesthetic in dogs. Zerfas, McCallum and their associates[2] reported the first work in the field of surgical anesthesia in man. I[3] have made previous reports on the use of this drug in the treatment of the psychoses.

Practically all of the work with sodium iso-amylethyl barbiturate has been done with the aim of bringing about a state of surgical anesthesia. I wish to emphasize the point that in our efforts we have a different objective. We are not concerned with the production of a state of deep surgical anesthesia. Instead we are seeking to produce a phase of unconsciousness which is possibly a trifle deeper, in its initial stage, than normal sleep.

For this reason the technic I will advocate is quite different from that used by the surgical anesthetist. Incidentally, when this technic is carefully followed, none of the occasionally distressing reactions will be encountered.

Before discussing the manner in which we advocate the use of this drug in neuropsychiatric conditions, I will briefly mention the clinical types that we have thus far treated beneficially by the use of periodic narcosis.

THE PSYCHOSES

The manic phase of manic-depressive psychosis has been successfully precipitated into profound and prolonged sleep at will. The initial struggle in making the injection is negligible. The course of the illness has been decidely abbreviated by a regular series of deep sleeps.

It is our practice to produce the narcosis once in twenty-four hours. While this initial phase of deep sleep lasts from four to eight hours on the average, there follows a period of four to six hours during which time the formerly excited and restless patient remains awake but is quieter and more relaxed. Not infrequently a period of natural sleep now follows. If narcosis is produced daily, the patients rarely reach the peak of mental or physical unrest manifest before the drug was employed.

We have also treated a number of depressed patients. In these the favorable response took the form of more prompt compliance with requests and a greater willingness to accept food. They became more active, more interested in their surroundings and one found a freedom from the awkward, constrained postures usually seen in this type. The depression is certainly less profound and the course of the illness is materially shortened, with the use of the drug.

The agitated depressions of the involutional type are treated quite like the excited states. The results are, if anything, more striking. A sufficient number of patients have made complete recoveries in from ten to fourteen days to eliminate the probability of chance. In other words, in cases which would normally be expected to continue for from six months to a year, recoveries have occurred in two to three weeks.

SCHIZOPHRENIA

The catatonic patient has shown some extremely interesting and rather striking responses. Several cases of catatonic excitement have been treated with excellent results. The following case is cited as an example:

J. L., age 20, a university student, while attending classes developed a sudden onset of confusion and mutism. After three weeks of negativism with a refusal to eat food, followed by a state of marked excitement, he developed active hallucinations, made bizarre gesticulations and facial grimaces, and became noisy, singing and yelling day and night. He was given sodium iso-amylethyl barbiturate and just as he was going to sleep said that he realized he was having a terrible time and hoped to recover so as to enter school at the beginning of the next semester. After his initial sleep he seemed quite normal for about four hours, during which time he discussed current topics, his illness, school and his future plans. He then fell asleep spontaneously, and on awakening from his second sleep he returned to his excited state. Daily injections for about three weeks produced similar results, except that his periods of being normal increased as the excitement gradually subsided. He was transferred to a sanatorium, where he continued to improve. During his stay there he became interested in outdoor activities and decided to follow an outdoor life and not to return to school. He has been successfully employed with a florist for six months and seems perfectly adjusted at present.

A series of some twenty cases of catatonia of the stuporous, cataleptic and negativistic types have been treated. With a few exceptions some extremely interesting and unusual reactions have occurred. These have been reported in previous communications.[4]

Periods of from four to fourteen hours of a "normal lucid interval" have been a constant result of the treatment, and during these intervals nourishment is taken voluntarily and often requested, whereas they were necessarily fed through a tube when the drug was not used.

PSYCHONEUROSIS

Some of the more severe psychoneuroses with distressing insomnia were speedily relieved. As soon as a periodic cycle of sleep was established, these patients began to improve. They had a better appetite, gained weight, had fewer neurasthenic complaints, were more optimistic. The entire picture changed. After several weeks of induction of sleep the drug was discontinued and it was unnecessary to use the drug subsequently.

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[1] Page, I. H., and Coryllos, P.: Iso-Amylethyl Barbituric Acid (Amytal), Its Use as an Intravenous Anesthetic, J. Pharmacol. & Exper. Therap. 27:189 (April) 1926.

[2] Zerfas, L. G., and McCallum, J. T. C.: J. Indiana M. A. 22:47 (Feb.) 1929.

[3] Bleckwenn, W. J.: Production of Sleep and Rest in Psychotic Cases, Arch. Neurol. & Psychiat. 24:365 (Aug.) 1930; The Use of "Sodium Amytal" in Catatonia, Proc. Association of Research in Nervous and Mental Diseases, 1929.

[4] Bleckwenn (footnote 3). Lorenz, W. F.: Some Observations in Catatonia, Psychiatric Quart. 4:95 (Jan.) 1930.

In these cases we have found that psychotherapy in the form of persuasion and suggestion become much more effective when combined with this periodic induction of sleep.

In several of these cases the use of various drugs over a period of years virtually amounted to true drug addiction. After sleep had been periodically induced, it was found that these patients no longer required the sedative drugs previously used.

CONVULSIVE STATES

In status epilepticus this drug is of real value. In two cases it was a life saving measure. In a third case it permitted an epileptic woman to go to full term in her pregnancy.

A boy, aged 14, developed jacksonian convulsions. Following this focal type of seizure, a status epilepticus of four hours' duration ensued. Morphine, chloral hydrate and ether inhalations were ineffective. At the end of four hours his temperature was 105 F. and his pulse 180. He showed irregular breathing, cyanosis and pulmonary edema. He appeared to be at the point of death. Sodium iso-amylethyl barbiturate was administered intravenously and the convulsions ceased during the injection. After six hours they reappeared and a second smaller dose was administered; following this the boy recovered from his convulsions. An infiltrating glioma of the frontal lobe was found at operation.

Several cases of eclampsia and two cases of tetanus with convulsions also responded with a cessation of the convulsions as the result of intravenous use of this drug.

METHOD AND DOSAGE

For therapeutic purposes in the types mentioned, a certain method and technic of administration is essential.

This consists of (1) dosage; (2) dilution of drug; (3) rate of intravenous injection; (4) depth of narcosis.

The following technic has been successful in our hands:

The patient should have no food for from four to six hours preceding drug administration.

The drug is freshly dissolved in triple distilled water. A 5 per cent solution is made. Each cubic centimeter thus contains three-fourths grain of the drug. The original dilution of Zerfas and his associates [2] is therefore changed. They advocate a 10 per cent solution, or 1½ grains per cubic centimeter.

The drug is injected intravenously at a rate not to exceed 1 cc. per minute. It is necessary to use a watch for this, since it is extremely difficult to inject accurately from 10 to 20 cc. over a period of from ten to twenty minutes without the hesitating, jerky type of injection.

The initial dosage is individual and for neuropsychiatric cases it is absolutely safe to give 2 cc. (1½ grains) more than is necessary to produce corneal anesthesia. We use the abolition of the corneal reflex as our criterion of proper narcosis and give an additional 1½ grains.

The average neuropsychiatric patient will thus receive between 7 and 15 grains intravenously. This is approximately half the amount used for surgical anesthesia.

In only one case have we found it necessary to exceed 15 grains in order to produce the required narcosis. This was in a woman who had received more than 250 injections during a period of nine months. It gradually became necessary to increase the dose to 21 grains. There seems to be a slight increase in the tolerance for the drug after prolonged use.

The drug may be used intramuscularly, in which event the dosage is increased and the solution is more concentrated.

A 20 per cent solution is prepared, and of this we give from 2.5 to 5 cc. or from 10 to 20 grains.

By the intramuscular route a narcosis is produced, but this is slower in its development and less profound, as compared with the response to the intravenous method.

In mild cases the drug can be used orally in doses of from 3 to 6 grains. It takes about forty-five minutes to be effective. It is effective as a hypnotic in the less severe types and is ineffective in the disturbed and violent cases.

And, finally, the patient must always be watched by a nurse from the time of administration of the drug until the initial narcosis wears off. This precaution is advisable because of the dangers of aspiration of vomitus and, further, because of the depth of narcosis and possibilities of suffocation.

As previously reported,[3] we advise caution in the use of iso-amylethyl barbiturate in cases of advanced arteriosclerosis.

If our method of administration is followed, observing the factor of greater dilution and measured rate of injection, the occasionally embarrassing reactions of greatly lowered blood pressure and shallow respiration are avoided.

Our experience with this drug now covers a period of more than a year. During this time more than 2,000 injections have been made in 184 cases. We are greatly impressed with the fact that the drug can be used daily over long periods of time without any untoward reactions.

CONCLUSIONS

1. Sodium iso-amylethyl barbiturate used according to the method advocated will induce narcosis in the various types of excitement and benign depression and in the convulsive states.
2. Periodically induced narcosis is decidedly beneficial in these cases, simplifying the management and materially shortening the course of the illness.
3. Normal lucid intervals, with spontaneous speech and the taking of nourishment, are seen in protracted cases of catatonic schizophrenia.
4. Periodic narcosis breaks down the stubborn insomnia associated with the more severe psychoneurosis.

ABSTRACT OF DISCUSSION

Dr. Harry Stack Sullivan, Towson, Md.: I would counsel, first, a measured optimism as to drug therapy in schizophrenia. I have not used preparations of iso-amylethyl barbituric acid but I have had some experience which is collateral to Dr. Bleckwenn's presentation. Some years ago it occurred to me that the impasse in which schizophrenic patients quite frequently come to rest indicated the use of pharmacodynamic agents that disturb the conscious processes. Dr. Ernest Hadley undertook to investigate the utility of atropine. This drug entailed so great a disturbance of the physiology of the patient that it was used in but three cases. Each of these, after an atropine delirium, showed a marked change of state —a marked and a persistent change, something of psychologic importance rather than merely transient phenomena. The disturbances of vegetative enervation and other complications seem to forbid the continued use of belladonna alkaloids, and we are still searching for the ideal delirifacient. Five years ago there was received into Sheppard Hospital a clergyman, aged 46, in catatonic excitement of such severity as rapidly to progress into dangerous physical collapse. I decided to intoxicate him deeply with ethyl alcohol. His severe intoxication was continued until his mental state had improved to the point at which he became aware of the identity of the therapeutic agent and objected to the treatment. He has been preaching for the last three years, having made an uninterrupted recovery. Since that time I have used this agent in the small percentage of acute and promising patients in whom originally high-velocity processes had subsided into a relatively unchanging detachment from all useful contacts; in other words, where there has appeared a continued useless preoccupation with schizophrenic content. The method has consisted of producing deep alcoholic intoxication and continuing it from six to fourteen days. The method has proved very useful and has been responsible for recovered accessibility in a number of patients who seemed otherwise to be proceeding toward the customary dilapidation. The drug has no curative effects in itself; it is an adjuvant which may be used when indicated by an impasse and it functions to reduce conflict, improve the patient's social contact, and clear the way for psychotherapy.

Dr. Meyer Solomon, Chicago: Drug therapy has been neglected much too often. When the literature of the psychoanalytic school, for instance, is combed, although they are handling anxiety states with insomnias, one never sees any reference to drug therapy as an adjuvant of psychotherapy. Paul Dubois and Dejerine practically advocate that drugs should not be used even for persistent insomnia in psychoneuroses. However, in handling psychoneurotic cases one sees patients who are being exhausted from failure to sleep and rest, which is often really responsible for their failure to eat or for their loss of weight, and I have often wondered what some of the men who are writing purely along psychotherapeutic lines do in these cases. They make no mention of anything other than their psychotherapeutic methods. My personal experience has been that I have been compelled to use hypnotics freely and judiciously in the handling of insomnia in psychoneurotic patients and similar states in psychotic patients. I am sure that what Dr. Bleckwenn has said about the early handling of the fatigue states and insomnia prevents aggravation that otherwise occurs. I have the firm conviction that those who are approaching the problem from a purely psychogenic and psychotherapeutic point of view are missing an opportunity if they fail to resort to pharmacotherapy that is really needed. If a patient can be made to have two or three weeks of good, sound sleep he is much more amenable to explanation, to discussion, to analysis of the psychogenic factors. In the early phase, with a fatigued patient, to begin to endeavor to unearth psychogenic factors only without handling his outstanding symptoms is an error. The fundamental object should be to relieve the symptoms; and, in addition to etiologic psychotherapy in psychogenic cases, relief of insomnia is a fundamental therapeutic object.

Dr. Albert E. Sterne, Indianapolis: I commend the author's position absolutely, not only for the views expressed, but because I can corroborate the results of the therapy he uses. I have had the opportunity of using sodium iso-amylethyl for a long time in excited cases of all kinds and descriptions. I have not limited myself to any one particular class. I have even used it in the extreme excitement of alcoholism with excellent results. I use the sodium iso-amylethyl intravenously and in exactly the same way, with especial emphasis on the slowness of injection. It must be given carefully and with some regard to the weight, and other elements in the equation, of that particular patient. In the last few years I have shifted the technic. I do not use it so much intravenously as I did. I use it by rectum, with similar results. I have kept a number of patients constantly semianesthetized for from five days to ten days, feeding them all this time especially fluids, if necessary in some instances with the nasal tube. I have kept them under most of the time, drowned them out some of the time, with the result that they have come out of the period of excitement and agitation, and conditions similar to that, have become tranquil, and have gone on to an almost uninterrupted recovery. After an experience of close to forty years, I must say that I have found nothing in the Pharmacopeia that has given anything like the results in drug usage that I have found in either the intravenous or the rectal use of sodium iso-amylethyl. I am at present also using it by mouth. Naturally, all the rest of the phases of the patient's treatment must be kept in the foreground; the baths must be given and the care of the patient kept constant during the period of semianesthesia, or seminarcosis.

Dr. George A. Moleen, Denver: I think that if every one agreed on subjects it would suggest the same provincial locality. It seems impossible to agree on the therapeutics which has as its purpose the achievement which form the most essential part of Dr. Bleckween's presentation; namely, the induction of sleep. The value of sleep, all will agree on, but I am not so convinced that any of the barbituric acid series are so free from later effects. I took occasion in New Orleans to raise that point when the late Dr. Grinker spoke of phenobarbital in connection with epilepsy, in that all, whether the methyl or the ethyl, derivatives of barbituric acid were open to question. The fundamental fact was that they may be retained in the blood as nitrogenous poisons, and in cases in which the elimination was defective—in which there was a renal inhibition—they were bound to have some ulterior effect. I had occasion to see a case of insomnia which was mentioned in the discussion to which I referred, in which either barbital or iso-amylethyl barbituric acid was given in order to bring about quiet toward evening. It was given in repeated doses until this was established, and a uremic delirium was induced which was pronounced, and fatal in the end. That was only one case but I feel sure there have been many of the same general nature. I believe it was von Leube who long ago suggested the importance of narcosis in excitable states, such as agitated melancholia, when he used opium in the form of tincture of opium and also chloral and bromides—combinations of them—to produce the same effect. The only point I want to make now, however, is that the barbaturic acid series, which is so popular now in the induction of quiet and sedative reactions, is not so free from danger as so many assert.

Dr. W. J. Bleckwenn, Madison, Wis.: I fully subscribe to the thought that barbiturates may be dangerous. However, with the technic such as I have outlined, no difficulties have been encountered. One patient has received 250 daily injections of from 15 to 22 grains (1 to 1.4 Gm.) of sodium iso-amylethyl barbiturate over a period of nine months. Throughout this period, careful clinical studies have been made, as well as biweekly laboratory check-ups consisting of kidney and liver function tests, and chemical examinations of the blood and the urine. There has been no disturbance seen over this long period. I fully appreciate Dr. Sterne's remarks. I did not know some one was here who had had such a long experience with this drug. I cannot, however, subscribe to the suggestion of continuous prolonged narcosis. This, of course, has been practiced for a long time. The point I tried to make in this paper and which I repeat for emphasis is that the periodic induction of sleep in each twenty-four hours should be one's therapeutic effort. This follows closely what is seen in the normal. This cyclic sleep permits of the cellular restoration of function and in my experience produces more rapid recoveries.

Nervous Breakdowns.—Given an inheritance of poor nervous tissue, a breakdown can come at any time and often without apparent cause. We see this in the lives of Wedgwood and Darwin and Galatin; they were all independently wealthy; they never had to work for a living; they were surrounded by devoted relatives, and yet they went to pieces nervously. It should be remembered also that Darwin broke down after years of outdoor life as an explorer and naturalist; one would think that such a life should have given him an iron constitution, but it did not. In many cases the nervous system seems to be made of poor materials, and like a defective tire, it blows out after a thousand miles instead of after the guaranteed ten thousand. In other cases, especially when the break comes in the latter half of life, I often suspect that it follows a slight unrecognized "stroke"; that is, some vascular injury to one or more small areas in the brain. In other cases there may perhaps have been a slight encephalitis, not severe enough to produce definite sleeping sickness with a masklike face, but enough to leave the brain crippled for months or years.—Alvarez, W. C.: Nervous Indigestion, New York, Paul B. Hoeber, Inc.

ABDOMINOPERINEAL OPERATION FOR CANCER OF THE RECTUM *

T. E. JONES, M.D.
CLEVELAND

A review of the history of cases of cancer of the rectum shows that there is still neglect of digital or proctoscopic examination of patients who present themselves for relief of bleeding from the rectum. Occasionally a patient does not seek medical advice until he is in a hopeless condition, but in this series of cases it was found that, while most of the patients did consult a physician from three to six months previously for the relief of rectal bleeding, the physician was misled by coexisting hemorrhoids and advised only palliative treatment. As a result, the patient left with a false sense of security and did not again seek relief for several weeks or months. That this is true is well borne out by the statistics, which show that in the past four years, from among 185 cases of cancer of the rectum seen at the Cleveland Clinic, 70 cases were hopelessly inoperable on account of the extent of the local disease or because of metastases. In our series of cases, the average duration of symptoms—constipation and bleeding from the rectum—was eight months; 25 cases had been seen previously without investigation having been made. Too often this is the case. The plea today—as it always has been—is for digital and proctoscopic examination in all cases of rectal bleeding, whether or not hemorrhoids are readily seen on inspection.

The decision as to whether a case of cancer of the rectum is operable varies with the surgeon. Operability is variously estimated at from 20 to 80 per cent of the total number of cases presented to the surgeon according to the extent of the operation and the criterion of the surgeon as to what constitutes operability. Naturally, the lower the percentage of operability, the greater the percentage of cures, and vice versa. If the surgeon considers only 30 per cent of his cases to be operable, it is reasonable to suppose that his percentage of cures will be greater than that of the surgeon who operates on 60 per cent of his patients. In the desire to secure a high percentage of cures, the surgeon sometimes loses sight of his duty to the patient—that is, to make him comfortable for a time if possible. It is also well known that in general the higher the percentage of operability the higher the mortality from operation, because the surgeon takes greater risks in the hope of accomplishing a cure. It would seem that he is justified in doing this. Of the 185 cases in our series, 60 per cent were operable, but in 15 per cent, or 28 of these cases, the patients refused operative treatment, some of them returning later in a hopeless condition.

In a case of cancer of the rectum, if removal of the rectum is contemplated, a thorough knowledge of the lymphatic drainage is essential. Miles's contribution along this line has been outstanding and has been referred to in a previous paper.[1] Three groups of glands must be removed—first, those in the ischiorectal space; second, the glands along the levator ani muscles; and, third, the glands in the mesosigmoid which accompany the inferior hemorrhoidal vessels. It is our opinion that the removal of these glands can be best accomplished by the one stage abdominoperineal operation so lucidly described by Miles.

After the diagnosis has been made, the patient is hospitalized and preoperative therapy is begun. This preoperative therapy is essential to the success of the operation. Practically all of these patients have more or less obstruction and it takes many days to empty the bowels. This is accomplished by giving the patient daily 1 ounce (30 Gm.) of magnesium sulphate in 6 ounces (175 cc.) of water—a tablespoonful of the mixture every half hour. This method prevents a drastic cathartic effect. In addition, cleansing enemas are given daily. The foregoing procedure is repeated for several days and it is amazing to see the change in the contour of the abdomen. *Bacillus acidophilus*, which helps to change the flora of the large intestine, is of benefit. All laxatives are discontinued on the day previous to operation.

The patient is put on a nonresidue diet consisting chiefly of large amounts of orange juice and sugar in the form of hard candy and, since it is believed that some of the unexplained deaths are due to liver failure, intravenous injections of dextrose are given daily to build up the glycogen content of the liver. Many patients, on account of intestinal disturbance, have had a poor appetite for weeks, and they must be built up. During their hospital stay, chemical examinations of the blood are made and the kidney function is thoroughly investigated. Digitalis is given frequently. A blood transfusion is given either before or after operation, according to the condition of the patient. Preoperative therapy should occupy from seven to ten days.

Spinal anesthesia is the preferable method. By any other method the operation would be much more difficult, and in some cases, especially on obese patients, it would be impossible. Absolute relaxation is imperative and this is secured by spinal anesthesia. For the past two years in the Cleveland Clinic we have been using a proprietary mixture of procaine hydrochloride and strychnine. In about one out of ten of our early cases this solution produced only an incomplete anesthesia. Finally we changed our technic from that originally outlined by Pitkin and since then we have not had a single failure. After the introduction of the anesthetic the patient is placed on his abdomen instead of on his back, because the solution, being lighter than the spinal fluid by this maneuver is more likely to come in contact with the sensory roots, which are the posterior roots. When the anesthesia has reached the costal border, the patient is again turned on his back and placed in the Trendelenburg position at an angle of 10 degrees.

An adequate midline or rectus incision is made and the liver and abdomen are explored for metastasis. If the case is pronounced operable, the intestines are packed off with gauze. If the sigmoid is adherent, it is mobilized by dividing the peritoneal attachment on the lateral side. The inferior mesenteric artery is then located about 1 inch (2.5 cm.) below the bifurcation of the aorta and is ligated below the first sigmoid branch. The peritoneum is then divided on either side of the sigmoid down to the promontory of the sacrum, thus bringing into view the cellular space between the anterior surface of the sacrum and the pelvic mesocolon. The hand is placed within this space and the fat is separated as far as the sacrococcygeal articulation. Traction of the bowel will then render prominent the peritoneum of the pelvic floor, which is cut forward on each side as far as the base of the bladder in the male, or as far as the upper part of the vagina in the female.

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* From the Cleveland Clinic.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[1] Jones, T. E.: Surgical Treatment of Carcinoma of the Rectum, J. A. M. A. **91**: 1711-1713 (Dec. 1) 1928.

In the male, the anterior wall of the rectum is separated from the base of the bladder down to the upper level of the prostate, care being taken not to injure the seminal vesicle or the vas deferens. In the female, the anterior wall of the rectum is separated from the posterior wall of the vagina as far down as possible. After this procedure, the lateral attachments of the rectum are divided as close to the pelvic wall as possible. The next step consists in crushing the bowel in a favorable place for a colostomy without too long a loop, and dividing it with a cautery. In our early cases we invaginated the ends of the bowel, but now we use the Miles procedure, and after tying the bowel we cover it over with a square piece of rubber dam. This saves time and avoids danger of contamination. The distal end of the bowel is then pushed down into the pelvis and the peritoneum is closed over it, care being taken not to cause kinking of the terminal ileum. If there is not a sufficient amount of available peritoneum, a flap may be dissected from the base of the bladder in the male or from the broad ligaments in the female, or an omental graft may be placed directly over the open space. If necessary, the fundus of the uterus can be stitched to the peritoneum at the promontory of the sacrum.

A left McBurney incision is made and the proximal end of the colon is brought out through the incision. The abdominal incision is then closed up and the patient is placed on his abdomen with the hips slightly elevated. The perineal part of the operation is begun by putting a purse string suture around the anus. A midline incision is then made from the sacrum to the perineum, a considerable portion of the perianal skin is removed, and the flaps are then dissected back to the edge of the gluteus muscle.

After the removal of the coccyx at the sacrococcygeal articulation, we come into the large cavity which contains the distal portion of the bowel, traction on which brings into view the levator ani muscles, which are divided as far laterally as possible in order to remove the glands which are adjacent to them. The rectum is then dissected from the tissues from above downward, the ischiorectal spaces being cleaned out thoroughly.

There now remains a large cavity surrounded only by the bony walls of the pelvis. It is obvious that this cavity cannot be closed and must heal in by granulation. A large square of rubber dam is laid in the cavity and gauze is packed inside to support the pelvic floor and prevent oozing; if gauze alone is used, it becomes adherent to the pelvic floor and is difficult to remove. The packing is removed on the second or third day, according to the condition of the patient, and irrigation with boric acid solution is begun. The colostomy is opened on the first or second day after operation, depending on the degree of discomfort experienced by the patient. If there are no postoperative complications, the patient is encouraged to get on his feet as soon as possible in order to allow the new pelvic floor to stretch and fill up the cavity.

In our series of forty cases of cancer of the rectum in which this operation was performed, there were five deaths, a mortality of 12.5 per cent. In one case, that of a man, aged 71, death was due to acute suppression of urine; autopsy revealed small, sclerotic kidneys. In the case of a woman, aged 61, autopsy showed subacute nephritis and partial obstruction of the lower part of the ileum. In a third case, that of a man, aged 65, autopsy showed paralytic ileus; there was no evidence of peritonitis. In the case of the fourth death, that of a man, aged 53, autopsy revealed obstruction in the terminal ileum due to constriction caused by pulling on the peritoneum in order to make the new pelvic floor. In the fifth case, that of a man, aged 67, autopsy revealed obstruction of a loop of ileum caused by a piece of omentum which was sewed down to cover a small opening in the pelvic floor.

It is apparent that the greatest danger encountered in this operation is obstruction from various causes. However, with the improved technic and the knowledge gained from experience, the mortality in the future should be greatly reduced. In closing over the pelvic floor, rather than to draw the peritoneum too tightly and cause kinking of the lower ileum, it is preferable to cover up any small opening with an omental graft instead of sewing the omentum over the defect, thus causing kinking of the intestines.

As five years has not elapsed since this series was started, it is useless to speak of end-results, but each case is being followed closely. Of the thirty-five patients surviving operation, thirty are living; five are dead. Of these five, three had metastases in the liver and two had local recurrence in the pelvis. The average duration of life in these five cases was fifteen months. Postoperative roentgen therapy was not used in any of these cases.

Forty one-stage abdominoperineal operations for cancer of the rectum are reported, so that after sufficient time has elapsed the result of this operation may be compared with the end-results of less radical operations. It can then be ascertained whether or not the abdominoperineal operation for cancer of the rectum is justified.

Euclid Avenue at Ninety-Third Street.

ABSTRACT OF DISCUSSION

DR. LOUIS J. HIRSCHMAN, Detroit: The abdominoperineal operation is the operation of choice in almost every case of carcinoma of the rectum or rectosigmoid. Conservatism means to conserve life; therefore, conservatism is the utmost radicalism. It is unnecessary to keep a patient in the hospital from seven to ten days in order to empty the colon before a radical operation for carcinoma. In addition to a cathartic, I use a 25 to 30 per cent solution of hydrogen dioxide introduced through a soft rubber catheter passed through the proctoscope so that it goes through the stricture and above; it will disintegrate the hardest type of impaction and empty the colon within three days in any case. More persons die after an operation for carcinoma from intestinal obstruction than any other single cause. Therefore, everything possible should be done to prevent obstruction. The commonest cause of postoperative obstruction is injury or adhesion. Spinal anesthesia gives more relaxation and one does not have to worry so much as formerly about packing off the bowels, which means that one is using force; and gauze, either wet or dry, insults the delicate peritoneal covering of the bowel and invites an agglutination to another portion of the bowel or surrounding tissues. Autopsy has shown that these adhesions occur, and, I think, frequently, as the result of the indiscriminate and forceful "packing away" of the intestines. By using spinal anesthesia and a rubber dam to protect the bowel from the surgeon with his gauze, one has a perfectly clean field in which to work, without postoperative traumatic obstruction from adhesions. For the comfort of the patient afterward I believe that a central placement of the colostomy is desirable. I have been using the umbilicus for that placement. Nature has provided a strong supporting force around an opening into the peritoneum at that point, and the rectus is particularly strong and gives good sphincteric action; moreover, through using that as the central point of the incision, carrying it from there slightly upward and downward, one can explore the liver, the peritoneum, the mesentery and all the other organs for metastasis and can pick out any portion of the colon for the colostomy. Then afterward, if the patient has to wear a pad or even wear one of those "diabolical bags" that Dr. Jones speaks of, it is placed in a central location and he does not have an embarrassing and telltale bulge in his clothing off to one side, and the discharge does not irritate the anterior superior spine. A patient who has had a coccyx removed sits against the edge of the sacrum. The coccyx should not be removed but just bent back and permitted to come into place afterward.

Dr. Curtice Rosser, Dallas, Texas: I agree with Dr. Hirschman that there it no necessity for removing bone. Cancer does not metastasize to the sacrum or to the coccyx, and it is not essential to remove either. The Kraske procedure became so popular that even to this day the term Kraske in the usual operating room is a synonym for any type of perineal resection of cancer. The agreement to sacrifice the sphincters was hard won but is now apparent. The sacral anus was then abandoned with almost as complete unanimity, and the permanent colostomy is now the procedure of universal choice. I am unwilling, however, to see any one procedure, no matter how attractive, adopted for every case of rectal cancer with disregard of the location of the growth, its extent, and the age and condition of the patient. Moreover, Rankin and others have stressed the tremendous importance in many cases of drainage preliminary to any type of colonic resection, and the graded operation has proved its value where even slight obstruction is present. Lockhart-Mummery, in his report of 200 cases of cancer treated by his radical perineal resection (which, of course, is an entirely different procedure from the old Kraske procedure in the amount of tissue it removes), while granting the undoubted need for the abdominoperineal operation for growths high in the rectum or the rectosigmoid, demonstrated that the radical perineal route was practicable with a mortality as low as 3 per cent. His combined mortality was around 8 per cent. Furthermore, he showed that it can be performed in patients over 60 as well as in those in whom obesity makes the abdominal procedure unduly dangerous, and his five-year results show a proportion of cures greater than 50 per cent. It would appear, if I read Dr. Jones's figures correctly, that in approximately 21.5 per cent of the cases seen by him the abdominoperineal operation apparently was justified. In other words, without some other procedure, a large percentage of cases, including those, of course, which were inoperable, would have been without benefit of removal of the growth. The contention of those favoring the perineal procedure in cancers of the anal canal or lower rectum is that the increased operability and lowered primary mortality make it possible to carry a greater number of cases of the total number seen through the five-year period. It is suggested, therefore, that some type of radical perineal resection should be in the surgeon's armamentarium in addition to the procedure described by the author.

Dr. J. Shelton Horsley, Richmond, Va.: The ideal method of treating cancer surgically is to remove it in a block dissection, and this means a one-stage operation. Sometimes shock can to a large extent be obviated by a continuous intravenous injection of dextrose and Ringer's solution. When the sigmoid is to be divided between two clamps, I make the incision for the permanent anus first, and slip a clamp through this incision to grasp the prospective oral end of the bowel. Then a clamp is placed on what will be the distal end, the division is made between these two clamps with the cautery, and the stump is thoroughly cauterized. The upper clamp can then be drawn out with the oral stump and left in place for several days, and when it is removed the anus is in its proper location. Of course, the stump should be fixed with a few sutures. This step saves the infolding and the suturing of the upper end. Shock may occur in the combined operation; and particularly when spinal anesthesia is used in these cases, which is undoubtedly preferable, the continuous intravenous injection of dextrose and Ringer's solution tends to hold up the blood pressure. I have been using this apparatus for the injection for several years. There is nothing original in it except the cannula. After the spinal anesthesia has begun, before the operation is started, this cannula is inserted. In some instances a hypodermic needle is all that will be necessary, but the cannula makes it more certain that the solution will continue. A small flow is begun at once, and as the operation proceeds, when the blood pressure begins to drop because of spinal anesthesia or shock, the flow is turned on full enough to keep the blood pressure reasonably well up, about 10 or 15 points below the patient's normal. Then the flow is reduced. It does not make much difference how rapidly it flows in cases like this; the heart cannot be overstrained when there is lack of fluid in the vascular system, as there is in shock. Matas first used the continuous intravenous injection of dextrose solution. I modified his method slightly by using this buret, for the flow can be regulated quite accurately by this narrow buret, and also by adding Ringer's solution to the dextrose. Ringer found that the addition of calcium causes the contractions of the heart to become stronger. I give a small amount of insulin, not enough for all of the dextrose, but in order to help the weakened patient, who probably cannot excrete quite enough insulin to take care of the excessive amount of dextrose.

Dr. Frank H. Lahey, Boston: In seven cases of cancer of the rectum I have employed an operation (1) for the purpose of securing good drainage by a preliminary colostomy; (2) to remove a segment of rectum that was clean; (3) to divide the magnitude of the operation into a lesser operation first, and a larger operation second, and (4) to establish good drainage posteriorly when the segment was removed. An incision is made from the pubis to the umbilicus. The sigmoid is pulled out up in the abdominal wall. The vessels of the sigmoid are ligated from the bowel down to but not including the superior hemorrhoidal vein and artery. A counterincision is made over the left side of the lower part of the abdomen and a clamp passed through it to grasp the sigmoid at the point where its mesentery is ligated. Another clamp grasps the sigmoid just below this point but in the median incision. The bowel is cut between the clamps with a cautery and the upper end pulled out through the left incision as a colostomy. The lower end of the sigmoid is implanted just above the pubis in the median incision and both leaves of the peritoneum of the cut mesentery are sutured together to prevent adhesions between the first and second stages of the operation, and the abdomen is closed. This represents the first stage of the operation. This, then, represents a segregated lower segment which is irrigated daily for two weeks. Three days before the second stage, the lower segment is irrigated with mercurochrome-220 soluble to make it as clean as possible, so that when the second stage operation is undertaken, from ten to fourteen days after the first stage, the bowel movements are well established, the lower segment has been irrigated clean, and the patient is in excellent condition. The second stage is then undertaken by closing the lower open end of bowel as the anus is closed for the posterior operation. The abdomen is reopened, the parietal peritoneum is cut beside the rectum, the superior hemorrhoidal vessels are ligated and the second stage is then concluded, as would be a preliminary one-stage abdominosacral operation, except that this lower segment is well cleaned, the inflammation about the tumor has gone down from irrigation, sepsis has been taken care of to a considerable extent, and the patient is in good condition because of the previously established colostomy. The patient can then be turned over, a clean segment of bowel removed from behind, after freeing above, and the major portion of the operation done in the second stage. The second stage can be done at any time.

Dr. George W. Crile, Cleveland: I have been an advocate of the two-stage operation, but since Dr. Jones introduced the plan he has described I have had the opportunity of comparing his results with the results secured by the rest of us, as to both the immediate and the late effects. The plan described by Dr. Jones has made the two-stage operation unnecessary. As Dr. Jones has shown, there have been postoperative deaths from shock, but the deaths, when they have occurred, were due to later obstruction. That is a technical matter which can be corrected. I believe that a greater number of permanent cures follow the one-stage operation; that is, it is easier for the patient to have everything done in one stage than to undergo a two-stage operation.

Dr. Fred Rankin, Rochester, Minn.: It should be emphasized, I believe, that any one type of operation for cancer of the rectum must be supplemented by three or four other accessory procedures. I agree with Dr. Jones in his statement that the ideal operation for cancer of the rectum is a combined abdominoperineal resection, whether by one stage or by two. In my experience, however, the applicability of this particular type of operation is not over 25 per cent in the total group of cases as they present themselves. This is a formidable procedure which may not be undertaken without considerable risk in the hands of the most expert and its application necessarily is limited to the best risks, which are in the most cases unobstructed. My second choice is a combined abdominoperineal resection in two stages, a colostomy being done first, with division of the bowel and dropping the distal end back. Secondarily, the resection may be carried out radically and with a satisfactory mortality. Unquestionably, we have all been prone to undertake the second stage too early and I am more and more delaying the resection with the idea that six weeks or possibly more should elapse between the two stages. Thirdly, I think that posterior resection following colostomy will continue to be the operation of choice in the majority of cases, not because one desires particularly to do this type of operation but because it is a procedure which may be carried out in the hands of most men with a low mortality and which will give fairly satisfactory results, even if applied to the whole group of cases. In addition to this, one must occasionally do a local excision, leaving a sacral anus, a procedure to be deprecated except at the patient's insistence. Lastly, a palliative operation with cauterization completes the surgeon's armamentarium. Let me emphasize that the type of operation applicable in rectal cancer is in no sense the type of procedure applicable to cancer of the rectosigmoid. A pointed distinction should be made between these two parts of the bowel because of difference in blood supply and lymphatic drainage. With increasing experience, individualization of cases, and segregation of colon and rectal cases into a single unit, hospital mortality may be reduced to around 10 per cent or even less for all types of operation and increasingly satisfactory end-results expected.

VENOCLYSIS [*]

GEORGE A. HENDON, M.D.
LOUISVILLE, KY.

Venoclysis is a term which I[1] have employed to designate a method for the biologic and continuous administration of physiologic and therapeutic solutions directly into the blood stream. The rate of the flow is regulated so that it will enter the blood stream in accordance with an estimated rate of delivery and distribution. Clinical experiences seem to indicate that for the adult individual this rate is approximately 200 cc. of fluid an hour, or a range of between 4,000 and 5,000 cc. of fluid in the twenty-four hours. The estimate of physiologic tolerance has been based, first, on the fact that patients receiving this amount of fluid at the rate here indicated are free from chills and sudden elevation of temperature, which regularly occur when solutions are suddenly or rapidly introduced directly into the circulation. Secondly, the rise in blood sugar is never more than 200 and then only during the first half hour after the beginning of the treatment when 10 per cent dextrose solution is used. The blood sugar returns to normal in about three hours.

The rate of administration has as much to do with the subsequent results in intravenous therapy as does the substance that is used. I believe it is illogical and perhaps irrational, although it may be expedient at times, to administer a dose as measured by quantity of anything under any circumstances directly into the circulation, because thereby is suddenly imposed on the circulation a burden that it may find impossible or difficult to carry. When a measured quantity of any substance is introduced into the alimentary tract or the subcutaneous cellular tissue, the balance between delivery and distribution is preserved by the physiology of digestion and absorption. In intravenous therapy there is no such physiologic barrier to provide the necessary regulation.

I have found it possible to produce chills by a process that is called "milking the tube." By that I mean making pressure on the delivery tube of the apparatus that will cause a sudden, rapid and intermittent delivery of the solution into the circulation. In addition to my other experiences I regard this as conclusive evidence that the cause of the production of alarming vital reactions following the introduction of physiologic fluids is the factor of time in relation to the volume of fluid introduced. Dosage and tolerance are matters of time as much as they are of quantity and character. One exception can be cited in which rapid introduction may be preferable; that is in transfusing to replace the sudden loss of a large quantity of blood.

PERIOD OF ADMINISTRATION

It must be borne in mind that venoclysis is intended to mean the continuous, uninterrupted, constant, direct administration of fluid into the blood stream. This fluid is presumed to contain sufficient nutritious principles in solution to support the phenomena of life.

The longest period of continuous administration thus far was accomplished by Dr. Frank P. Strickler in a case of purulent meningitis following a mastoid abscess in which he kept the venoclysis going without interruption for twenty-one days. During that time, however, the patient was taking some food and liquids by mouth. In my own experience I was able to maintain the continuous administration in a case of recurrent gastric ulcer for sixteen days during which time the patient received no food by mouth except for one day in the middle of the period, when I transferred the feed from the left basilic to the right basilic vein.

Five days is about the average time that one vessel will remain sufficiently patent to convey the fluid. In exceptional cases I have been able to carry it as long as eight days without changing the vein. Apparently the endothelial surface of the vessel becomes agglutinated after five days and the result is obstruction of the flow and change of veins is thereby made necessary. I find most convenient the basilic and cephalic veins but also use the venae comites and saphenous and superficial veins of the leg below the knee. They all seem to serve with equal facility, and so far there have been no circulatory complications of any importance either local or systemic occurring during or subsequent to the treatment. The period of administration is dependent on the object that I expect to accomplish. For example, experience seems to indicate that from three to five days is necessary to cure a case of emesis gravidarum, while twenty-one days was required in Dr. Strickler's case of meningitis with blood stream infection. From five to sixteen days proved sufficient to control the acute symptoms of peptic ulcer in six cases.

SUBSTANCES EMPLOYED

The substances employed must be in perfect solution and sterile. They must be compatible with the blood. The ingredients of the solution will depend on the indication one is seeking to fulfil. I have used various physiologic solutions but most frequently 10 per cent dextrose in physiologic solution of sodium chloride. Any medication desired can be added to the dextrose or saline solution according to demands. For example, intravenous iron preparations, digifoline, morphine, a soluble barbital compound, calcium and magnesium salts or citrated blood. The latter can be mixed in equal quantities with the dextrose or saline solution. The drugs are administered in solution by injecting them through a hypodermic needle into the delivery tube of the apparatus. I have also added such germicides as metaphen and mercurochrome-220 soluble when indicated. Dextrose is more often indicated than any other one ingredient of the solution. My experience is most abundant in that particular relationship. I generally use a 10 per cent solution because a lower concentration would require an unwieldy volume of fluid to deliver an adequate supply of dextrose, and a higher concentration would increase the viscosity of the fluid and thereby create obstructive difficulties in the process of administration. I am governed in the daily aggregate amount by the appearance of sugar in the urine. This I do not interpret as a signal of alarm but as an evidence that the physiologic demands of the individual have been fulfilled and that to proceed beyond that point would be useless effort and economic waste. I find that patients suffering with severe toxemia and high temperature will consume at least twice as much dextrose in twenty-four hours as those with low temperature and not affected with toxemia. For example, in peptic ulcer cases I found that an average of one-half pound (0.2 Kg.) of dextrose a day seemed to meet their physiologic needs, while in emesis gravidarum and septic infections, 1 pound (0.5 Kg.) a day was the average requirement. Patients with cancer of the colon could consume as much as 11 pounds (5 Kg.) in six days without showing sugar in the urine.[2]

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[*] Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

[1] Hendon, G. A.: Tr. South. S. Soc., 1924; Texas State J. Med. **21**: 662 (March) 1926; Kentucky M. J. **27**: 202 (May) 1929; Tr. South. S. Soc., December, 1929; Ann. Surg. **91**: 753 (May) 1930.

The list of substances that can be used as ingredients of venoclysis solutions is destined to prove an extended one. The work so far has only served to demonstrate the safety and utility of the method and emphasize the value of dextrose when given in quantities sufficient to meet the demands of the system. A patient weighing 150 pounds (68 Kg.) can easily assimilate 2 pounds 0.9 Kg.) of dextrose a day. My experience demonstrates that no patient need ever die of dehydration or starvation alone and that not only life but a fair degree of physical prosperity can be sustained over a period of at least sixteen days without alimentary feeding; that venoclysis renders the physician and patient absolutely independent of the gastro-intestinal canal during a given period. I have every confidence that the time limit of vital sustenance by venoclysis will be substantially increased by greater experience. As demonstrated by Boothby, one can fare very well and perform light work on an exclusive carbohydrate diet for sixty days at least.[3]

Certain phenomena have been observed in the course of my work that are both surprising and unaccountable. In 95 per cent of my cases the red cell count was increased, sometimes very rapidly; in one case, one million the first twenty-four hours and one million and a quarter in the second day, and these increases were maintained in the cases that were followed. One of these was a so-called pernicious anemia in which the patient could not retain food or drugs by the stomach. The other was a simple secondary anemia in which the red blood cell count had dropped down to two and one-half million. The urinary output is nearly always one-half the amount of solution administered. Venoclysis obtunds the sense of hunger. Patients seem to lose all personal interest in food. I have two patients that were confirmed inebriates who completely lost their craving for alcohol after a venoclysis treatment. Bile coloring can be washed out of the tissues in three days. Venoclysis dehydrates the brain and spinal canal in inflammatory and traumatic conditions.[4]

I have used venoclysis with complete success in fourteen cases of emesis gravidarum that were referred to me by my obstetric friends after every other means had been exhausted except the induction of abortion.

Two cases of multiple abscess of the liver were cured, one of which was verified by laparotomy both before and after the treatment and the other was observed and diagnosed by five of the best clinicians.

In two cases of pyogenic blood stream infection the patients were promptly restored to health.

One case of tularemia with extensive axillary adenitis was cured after dissection of the infected glands.

In two cases of meningitis following operation for suppurating mastoid, the pyogenic organisms were found both in the blood stream and in the spinal fluid.

In the past five years I have used venoclysis as a routine for shock, sudden loss of blood, septicemia and all forms of serious surgical toxemias, with the most gratifying results. Its most brilliant achievements have been realized in abdominal surgical conditions in which I also use it constantly, particularly in intestinal obstruction after late operation and for the relief of serious postoperative sequelae and peritonitis from any source, or for deficiency of nutrition or mineral salts, whatever may be its cause. Venoclysis is my method of choice for making blood transfusions because it eliminates the alarming reactions that so regularly occur under other circumstances.

It is ideal as a postoperative treatment following visceral anastomoses. The alimentary canal is placed at rest, peristalsis is inhibited, and opportunity is thereby allowed for union to become established. In six cases of peptic ulcer I have succeeded in controlling dangerous hemorrhage and allaying symptoms as long as a year and a half by a period of five to sixteen day treatment in each case. As a prophylactic against hemorrhage, shock or sepsis, I always employ this measure during as well as after critical operations. In weak and debilitated patients I find that one-half pound (0.2 Kg.) of dextrose a day given by venoclysis three or four days in advance of the operation increases resistance and broadens the margin of safety to a remarkable degree. Its range of usefulness is too wide and varied to be presented here in detail but can be briefly summed up: Venoclysis furnishes a method by which nutrition can be supported independent of the alimentary canal, dehydration prevented, acidosis overcome, infection combated and toxins diluted to a degree of innocuous attenuation.

The apparatus consists essentially of a silver and gold plated cannula. Any size required may be obtained, but the 12 gage is found most frequently useful. Two vacuum bottles suspended from a stand 6 feet high act as reservoirs to contain the fluid and maintain its temperature. A visible rectal dripper is joined in the delivery tube. The rubber tubing used must be of the thick walled stethoscopic variety except for the piece that fits over the cannula. This should be thinner so as to be easily slipped on and off.

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[2] Hanes and Applehaus: Personal communication to the author.

[3] Deuel, H. J., Jr.: Sandiford, Irene; Sandiford, K., and Boothby, W. M.: J. Biol. Chem. 76: 391 (Feb.) 1928.

[4] Strickler, F. P.: Report of a case before the Jefferson County Medical Society, April 22, 1930.

In preparing the solutions I use physiologic solution of sodium chloride as a vehicle because of its convenience, though I have employed Ringer's solution, Fischer's solution and plain sterile water. Hospitals usually keep a generous supply of physiologic solution of sodium chloride on hand, already sterilized. To this may be added any proportion of whatever ingredient is desired. I use dextrose, which may be sterilized by subjecting the solution to 15 pounds pressure for ten minutes. A supply sufficient for twenty-four hours' use is made at a time.

I endeavor to deliver the fluid into the vein at 100 F. It is placed in the container at from 120 to 130, thus allowing for a loss of from 20 to 30 degrees in transit. Recent experience seems to indicate that temperature is not of as much importance as I formerly believed it to be.

TECHNIC

Any conveniently situated vein will do, but I prefer the basilic or cephalic because, for one reason, they lack tributaries. The vessel is exposed above the elbow by a horizontal incision after a tourniquet has been applied. With an aneurysm needle a convenient length of umbilical tape is carried beneath it. The vein is then ligated with catgut distal to the tape. It is now picked up with mosquito forceps and the tourniquet removed. The portion in the grasp of the forceps is snipped with a manicurist instrument known as a cuticle nipper. This enables one to lift up a tongue of triangular shaped tissue composed of vessel wall. Through the opening thus made the specially devised cannula is introduced beyond its shoulder and the tapes encircling the vessel are tied, one proximal and the other distal to the shoulder. The cannula thus secured is then connected by a piece of rubber tubing and a glass irrigating nozzle to the delivery tube and the flow is started at a rather rapid dropping rate and immediately throttled down to about forty drops a minute. The rectal dripper serves to permit one to count the drops and register the amount. When I am assured that the connections are patent and the flow established, the tubing is bound to the forearm with encircling strips of adhesive plaster to the wrist. No splints are either desirable or necessary; the patient may assume any position he finds most comfortable. Two vacuum bottles to act as reservoirs are provided so that there need be no interruption in the supply. As soon as one becomes empty the alternate is turned on and the exhausted flask is refilled immediately.

Regarding the blood sugar content during venoclysis, information has been furnished me by Dr. W. T. McConnell[5] from his records taken from fifteen of his own personal cases. He made eight readings from each case at half hour intervals and for venoclysis of 10 per cent dextrose solution the following results were obtained: The first reading one-half hour before beginning the venoclysis averaged 120 mg. The first half-hour after beginning venoclysis showed 200, the second 175, the third 150, the fourth 135, the fifth 130, the sixth 120, the seventh 120, the eighth 120. These figures seem to prove that venoclysis is physiologically and biologically correct and that it possesses a decided and extended clinical value that cannot be obtained in any other way.

SUMMARY

1. Venoclysis furnishes a safe, simple and efficient method of supplying nutritious fluids or medicine directly into the circulation in any quantity that may be desired.
2. Venoclysis enables one to preserve the ratio between delivery and distribution, thereby eliminating the group of shock symptoms called reactions.
3. Venoclysis permits the use of commercial dextrose, which is an important economic consideration.
4. Venoclysis allows the administration of adequate dextrose and sufficient fluid to sustain life without the functions of the alimentary canal being exercised.
5. Venoclysis offers the safest plan for the transfusion of blood.
6. Venoclysis offers the most logical means of combating blood stream infection with germicides and dilution of toxins.
7. Venoclysis is the surest and quickest way known to gain a substantial and permanent increase in red blood cells and to dehydrate the brain and cord in traumatic and inflammatory conditions.

321 West Broadway.

ABSTRACT OF DISCUSSION

Dr. Lucian H. Landry, New Orleans: Some obstetricians have advocated the addition of insulin when giving dextrose intravenously by the drip method in the treatment of hyperemesis gravidarum and the toxemias of pregnancy. I have not found this to be necessary, since the glycosuria and glycemia following the prolonged administration of 5 per cent dextrose by the drip is only slight and transitory. I can also confirm Dr. Henry J. John in his advocacy of the use of dextrose with insulin in the treatment of diabetic patients needing surgery, though we scarcely exceed the usual 5 per cent solution except in cases in which renal insufficiency complicated the diabetes, when dextrose is administered in larger doses (Enriquez solution) as a diuretic. The blood sugar can be easily controlled by the use of insulin, the intravenous dextrose rendering great aid in overcoming the acidosis and increasing the excretion of acetone bodies through the urine. While we depend on dextrose almost exclusively for our routine solution, we recognize that there are special indications for saline or mixed salt and sugar solutions, which are not met by dextrose alone. The salt is especially indicated in acute intestinal obstruction for the relief of the hypochloremia. Hypertonic salt solutions may be used as suggested by Weed (25 per cent) in cases of cranial injury with contusion and compression, but even here I prefer the hypertonic dextrose (25 to 30 per cent) for short infusions not exceeding 500 cc. at a time. This, in combination with magnesium sulphate by mouth, can be depended on as a sufficient cerebral dehydrant. Gally and Harris (*Ann. Surg.* **91**:422 [March] 1930) show a fear of dextrose for intravenous use which is not justified by clinical experience. Of course it goes without saying that hypertonic or supersaturated salt (20 per cent sodium chloride, Linser's solution) or sugar (from 30 to 50 per cent dextrose, Nobl's solution) will cause sclerogenic processes when injected into veins, and for this reason are used advantageously for the treatment of varicose veins; but this does not apply to the isotonic solution, 5 per cent, which I use for the continued drip. Our experience of twelve and more years, with the continued dextrose drip, kept up days and sometimes weeks in hundreds of cases, have never been followed by postoperative pulmonary embolism or thrombosis. My experience is in accord with others that the free use of dextrose in the continuous drip not only is superior to salt in many ways but, from a clinical point of view, may be regarded prophylactically as an antithrombotic agent. While it has been shown experimentally that dextrose solution shortens the coagulation time in cholemic states and obstructive jaundice, it has also been shown that a thrombophilic state of the blood is induced by a protein diet, while the coagulability of the blood is not increased by a hydrocarbon (dextrose) and fat diet.

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[5] McConnell, W. T.: Personal communication to the author.

Dr. J. C. Ray, Louisville, Ky.: It is needless for me to verify the number of statements just made by Dr. Hendon regarding venoclysis because he has full proof of the procedure and results in most of the cases. Dr. Hendon has used successfully venoclysis in a number of cases that were considered hopeless by many physicians associated with the work. May I mention a few criticisms that have been brought against venoclysis by men who have only a few times observed its reaction? First, that a patient may drown because of the large quantity of fluid that is used. This is known to be untrue, because many of the patients who have had venoclysis are now living. A few postmortems that I made showed that the cavities had no excess of fluid and that the lungs were crepitant throughout; I considered that we had not drowned these patients. Another criticism offered by some physicians is that the patient suffers by the continuous administration necessary. It was my privilege to help Dr. F. P. Strickler with a patient. There were twenty-one days of administration, beginning with an unconscious patient who had meningitis with streptococcus and staphylococcus culture from the spinal fluid and the blood stream. There was an increase of spinal fluid pressure to something like 40 mm. of mercury. Within less than forty-eight hours the patient's temperature had dropped only a small amount, and the patient was able to read a paper with a temperature of from 103 to 104 F. In this particular case, we used the left arm vein once, both veins of the right arm, and one vein in each leg during the twenty-one days of administration. It has also been said that the fluids or feedings should be given at certain intervals. Does the intestinal tract empty everything into the blood stream all at once? The continuous administration of the dextrose into the blood stream is a physiologic fact.

Dr. Paul Titus, Pittsburgh: I have long thought that single injections of strongly hypertonic dextrose solutions are preferable to prolonged injections of weak solutions, termed venoclysis by Dr. Hendon, because the latter will frequently cause certain types of reactions unless given exceedingly slowly. Largely as the result of Dr. Hendon's excellent work on venoclysis, I am now convinced that there is also a distinct place for this type of injection which he has described. Woodyatt, Wilder and Sansum have shown that the body cannot utilize dextrose injected faster than 0.8 Gm. per kilogram of body weight an hour. Other work has demonstrated that from 75 to 100 Gm. of dextrose should be about the maximum dose at this rate. If given faster or in larger amounts, loss by kidney occurs as well as an undue stimulation of the pancreatic function, with an outpouring of endogenous insulin in excessive amounts which may frequently produce the result of a sharp hypoglycemic reaction. Such a reaction is similar to those seen fairly frequently following dextrose test meals. Dr. Hendon did not have sufficient opportunity to emphasize that in prolonged venoclysis the injection rate must be several times slower even than that for the single injections in order to avoid these reactions as he has been able to do. The common fault in the average intravenous injection of dextrose is that it is almost invariably given dangerously fast. The single injections of maximum amounts of dextrose solutions at maximum rates are by no means to be discarded in favor of this method just described, but venoclysis offers an additional choice of methods of intravenous administration of dextrose especially adapted to cases in which marked dehydration is a factor. The older method will probably continue to be the method of choice in the majority of instances, although there are certain types of cases in which venoclysis is to be preferred.

Dr. G. A. Hendon, Louisville, Ky.: I did not have time to refer to the sources of my information, but they will appear in the bibliography. I sought to give credit to everybody who has contributed to this important subject. Dr. Landry particularly brought out Dr. Matas's work, which I have acknowledged in my references as the foundation of my information. Dr. Landry made the observation that the sugar would not support life indefinitely. We do not live that long under any circumstances.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

AMYTAL. — Isoamylethylbarbituric acid. — Isoamylethylmalonylurea. — 2,4,6-trioxy-5-isoamylethylpyrimidin. — $C_5H_{11}(C_2H_5)\underline{C\ CONH\ CONH\ CO}$. Amytal differs from barbital (diethylbarbituric acid) in that one of the ethyl groups of the latter is replaced by an iso-amyl group in the former.

Actions and Uses.—The actions and uses of amytal resemble those of barbital. It is proposed as a sedative and hypnotic in the control of insomnia and as a preliminary to surgical anesthesia.

Dosage.—It is given orally in tablet form with water or hot milk. As a sedative: 0.02 to 0.04 Gm. (⅓ to ¾ grain) two or three times daily. As a hypnotic: 0.1 to 0.3 Gm. (1½ to 5 grains) one-half to one hour before sleep is desired. For use before local or general anesthesia the dosage ranges between 0.2 and 0.6 Gm. (3 to 10 grains), being determined by a large number of factors (age, etc.). It can be used safely for such purposes only by those who have had much experience and are familiar with the literature concerning such use. As an antispasmodic in tetanus, 0.4 to 0.8 Gm. (6 to 12 grains) may be required to control convulsions. In some patients barbital derivatives produce restlessness and excitement, and to these patients amytal should not be administered.

Manufactured by Eli Lilly & Co., Indianapolis, Ind. U. S. patent 1,514,573 (Nov. 4, 1924; expires 1941). U. S. trademark 161,125.

Tablets Amytal, 1½ grains.

Amytal occurs as a white crystalline, odorless powder, with a slightly bitter taste; completely soluble in alcohol and ether; very slightly soluble in cold water; insoluble in the paraffin hydrocarbons. A saturated aqueous solution is acid to litmus paper. It melts at 153-155 C.

Place 0.3 Gm. of amytal in a 25 cc. glass stoppered cylinder, add a mixture of 1 cc. normal sodium hydroxide solution and 5 cc. of water, shake the contents for one minute, filter through paper and divide into two portions; to one portion add 1 cc. of mercuric chloride solution: a white precipitate results, soluble in 10 cc. of ammonia water; to the other portion add 5 cc. of silver nitrate solution: a white precipitate results, soluble in 5 cc. of ammonia water. Boil 0.5 Gm. of amytal with 5 cc. of a 25 per cent sodium hydroxide solution: it is decomposed with the evolution of ammonia.

Dissolve 0.1 Gm. of amytal in 1 cc. of sulphuric acid: the solution is colorless (*readily carbonizable substances*). Boil 0.5 Gm. of amytal with 50 cc. of water for two minutes: no odor develops; cool and filter: separate portions of 10 cc. each of the filtrate yield no opalescence with 1 cc. of diluted nitric acid and 1 cc. of silver nitrate solution (*chloride*); no turbidity with 1 cc. of diluted nitric acid and 1 cc. of barium nitrate solution (*sulphate*); no coloration or precipitation on saturation with hydrogen sulphide (*salts of heavy metals*).

Incinerate about 1 Gm. of amytal, accurately weighed: the residue does not exceed 0.1 per cent. Dissolve about 0.5 Gm. of amytal accurately weighed, in 25 cc. of previously neutralized alcohol; dilute with an equal volume of water and titrate with tenth-normal sodium hydroxide solution, using thymolphthalein as an indicator: the amount of tenth-normal sodium hydroxide solution consumed corresponds to not less than 98.5 per cent nor more than 101.5 per cent of isoamylethylbarbituric acid.

PULVULES SODIUM AMYTAL, 3 GRAINS.—Gelatin capsules ("pulvules") each containing 0.2 Gm. (3 grains) of sodium amytal, the monosodium salt of isoamylethylbarbituric acid.

Actions and Uses.—The actions and uses of pulvules sodium amytal, 3 grains, resemble those of barbital. The product is proposed as a sedative and hypnotic in the control of insomnia and as a preliminary to surgical anesthesia.

Dosage.—As a potent sedative or hypnotic, 1 "pulvule" (capsule), equivalent to 0.2 Gm. (3 grains), repeated if necessary at intervals of six hours. For use before local or general anesthesia the dosage ranges between 1 and 3 pulvules, 0.2 to 0.6 Gm. (3 to 9 grains), being determined by a large number of factors (age, etc.). It can be used safely for such purposes only by those who have had much experience and are familiar with the literature concerning such use. As an antispasmodic in tetanus, from two to four pulvules, 0.4 to 0.8 Gm. (6 to 12 grains), may be required to control convulsions. In some patients barbital derivatives produce restlessness and excitement, and to these patients pulvules sodium amytal, 3 grains, should not be administered. The pulvules may be administered by mouth, or, if necessary, the same dose given rectally, the pulvules being inserted as suppositories or the contained powder dissolved in a little water and administered.

Manufactured by Eli Lilly & Co., Indianapolis, Ind. U. S. patent 1,514,573 (Nov. 4, 1924; expires 1941). U. S. trademark 161,125.

Sodium amytal occurs as a white, friable, hygroscopic odorless granular powder with a slightly bitter taste; very soluble in water; freely soluble in alcohol about 1 part in 1 part; practically insoluble in ether.

Dissolve about 0.5 Gm. of sodium amytal in 100 cc. of water, add an excess of diluted hydrochloric acid; collect the resultant isoamylethylbarbituric acid on a filter, wash and dry: it melts at 152-155 C. Incinerate about 1 Gm. of sodium amytal: the residue responds to tests for sodium carbonate. Boil about 0.5 Gm. of sodium amytal with 5 cc. of a 25 per cent sodium hydroxide solution: it is decomposed with the evolution of ammonia. Dissolve about 0.3 Gm. of sodium amytal in 10 cc. of water and divide into two portions; to one portion add 1 cc. of mercuric chloride solution: a white precipitate results, soluble in an excess of ammonia; to the other portion add 5 cc. of silver nitrate solution: a white precipitate results, soluble in 5 cc. of ammonia water.

Dissolve about 0.5 Gm. of sodium amytal in 50 cc. of water, add 5 cc. of diluted nitric acid and filter through paper: separate portions of 10 cc. each of the filtrate yield no opalescence on the addition of 1 cc. of silver nitrate solution (*chloride*); no turbidity on the addition of 1 cc. of barium nitrate solution (*sulphate*). To about 0.2 Gm. of sodium amytal in 25 cc. of water, add 1 cc. of diluted hydrochloric acid, filter through paper: the filtrate yields no coloration or precipitation on saturation with hydrogen sulphide (*salts of heavy metals*). Add about 0.2 Gm. of sodium amytal to 1 cc. of sulphuric acid: the solution is colorless (*readily carbonizable substances*). Transfer about 1 Gm. of sodium amytal, accurately weighed, to a glass stoppered cylinder, add 50 cc. of anhydrous ether, stopper, shake the contents for ten minutes; decant the supernatant liquid through filter paper, and repeat twice, using first 25 cc. and second 15 cc. of ether and utilizing the same filter; evaporate the combined filtrate to dryness in a tared beaker and dry to constant weight at 100 C.: the residue does not exceed 0.2 per cent (*uncombined isoamylethylbarbituric acid*).

Dry about 1 Gm. of sodium amytal, accurately weighed, to constant weight at 100 C.: the loss does not exceed 1 per cent. Transfer about 0.5 Gm. of sodium amytal, accurately weighed, to a suitable Squibb separatory funnel, add 50 cc. of water, followed by the addition of 10 cc. of diluted hydrochloric acid, extract with eight successive portions of ether, using 25 cc. each, evaporate the combined ethereal extractions to dryness in a stream of warm air and dry to constant weight at 100 C.: the amount of isoamylethylbarbituric acid corresponds to not less than 90 per cent nor more than 91 per cent, calculated to the dried substance. Weigh accurately about 1 Gm. of sodium amytal in a tared platinum dish, add 5 cc. of sulphuric acid, heat cautiously until the excess of sulphuric acid has been volatilized; repeat twice, using 1 cc. of sulphuric acid each time, add about 0.5 Gm. of ammonium carbonate, ignite to a constant weight and weigh as sodium sulphate: the percentage of sodium corresponds to not less than 8.9 per cent nor more than 9.5 per cent when calculated to the dried substance.

COMMITTEE ON FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COMMITTEE ON FOODS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

ARGO CORN STARCH

Manufacturer.—Corn Products Refining Company, New York.

Description.—A refined corn starch of high purity.

Manufacture.—Shelled corn, cleaned free of foreign material, is covered over with water and allowed to stand in tanks to soften for thirty to forty hours. The water with dissolved proteins, sugars and other soluble matter is drawn off.

The softened corn is washed and cracked or broken in attrition mills. The germ and coarser hull are separated out by means of germ separators and bolting reels. The remaining material is ground in burrstone mills to loosen completely the adhering hull. The fine ground mixture is passed over shakers clothed with fine mesh silk to separate out the fine hull particles. The hull free starch and gluten material passes through, is mixed with water and flowed over slightly inclined wooden tables. The starch settles out by gravity and deposits on the tables, whereas the gluten and water flow off.

The starch on the tables is flushed with process water which brings it into suspension. It is again deposited on the tables or washed in continuous filters with fresh water, which removes considerable admixed soluble material. The starch is removed from the filters or tables, dried in kilns (twenty-four hours), milled to a powder, bolted to remove coarse particles and finally packed by automatic machines.

Composition.—

	Per Cent
Moisture	12.5
Ash	0.15
Protein (N × 6.39)	0.3
Fat (ether extract)	0.1
Starch (by difference)	86.95

Calories.—

3.50 per gram.
99.4 per ounce.
1,590. per pound.

Claims of Manufacturer.—Argo corn starch is recommended for use in puddings, custards, ice cream, a wide variety of desserts, in bakery products, and for thickening gravies, sauces, pie filling, stewed fruits, etc.

DROMEDARY GOLDEN DATES (PITTED AND PLAIN)

Manufacturer.—The Hills Brothers Company, New York.

Description.—Pasteurized pitted or plain Mesopotamian dates in cartons.

Preparation.—The dates are mechanically graded at Basrah, Mesopotamia, packed in boxes and shipped to Brooklyn. The largest and most perfect dates are selected for the Dromedary Brand.

The selected dates, pitted or plain, are washed, and pasteurized in ovens under definite temperature and humidity conditions for a fixed period of time. Nonsporulating bacteria do not survive the treatment. (Numerous laboratory experiments show that temperatures of 160-185 F. at humidities of 70-100 per cent for from thirty to ninety minutes are effective for reducing the molds and bacteria 93 to 99 per cent.) The pasteurized dates are sealed in wax-paper in cartons and again pasteurized.

Composition.—Pits constitute 12.8 per cent of plain dates. Pitted dates:

	Per Cent
Moisture	19.0
Ash	2.2
Protein (N × 6.25)	1.7
Fat (ether extract)	1.9
Sucrose	0.0
Reducing sugars as invert	73.5
Crude fiber	2.2
Total carbohydrates (by difference) other than crude fiber	73.0
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The Diagnostic Clinic at Its Best.—The latest substitute for the breadth of vision of the general practitioner is that offspring of the American god of efficiency, the Diagnostic Clinic. What a strong appeal it makes, this apparently ideal combination of a group of specialists so closely affiliated as to afford all the advantages of expert knowledge and at the same time maintain the desirable general supervision! Practically the method seems to work out about like most substitutes—sometimes well and sometimes badly. It all depends upon the men who constitute the group. At its best the patient finds himself in the hands of a wise, broadly trained physician who handles his case personally and refers as occasion demands to intimate and trusted associates who are skilled in special fields. One man has personal supervision over the case and devotes enough time to it to grasp all of its ramifications, so that he can estimate the relative importance of the findings of the specialists on the production of the symptoms in the individual. —Peabody, F. W.: Doctor and Patient, New York, Macmillan Company, 1930.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

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SATURDAY, OCTOBER 18, 1930

NATIONAL INSTITUTE OF HEALTH

On May 26 the President attached his signature to the act establishing the National Institute of Health. This bill, sponsored by Senator Joseph E. Ransdell, was approved by the American Medical Association and actively supported by practically every organization devoted to the advancement of human welfare. In accordance with the act, the Hygienic Laboratory of the Public Health Service, with its long record of accomplishments, is merged into a new institution with well nigh unlimited opportunities for scientific research.

Originally attached to the marine hospital in New York as a small clinical office, the Hygienic Laboratory was founded in 1887, when the world heard with astonishment of the menace of germs as agents of disease. The laboratory passed under a variety of names until 1901, when Congress gave it a place in governmental nomenclature by appropriating a small sum for an experimental building and directing that the institution should "investigate matters pertaining to the public health." This broad authorization has produced singularly happy results. The first large undertaking was to put the commercial production of vaccines, serums and analogous products on a safe and scientific basis; in cooperation with responsible business concerns, a system of inspections and licensing was established. So thoroughly has this plan been developed that today the practicing physician in the most remote section of the country has ready access to dependable biologic products for administration to his patients.

The Hygienic Laboratory's contributions to the betterment of human health speak for themselves. The essential cause of pellagra was worked out at the laboratory and its field stations. This clearly pointed the way to both prevention and cure, so that at present this disease may be said to be no longer a medical problem but an economic one. Early studies of anaphylaxis, a word which, by the way, was coined at the Hygienic Laboratory, brought the phenomenon of hypersusceptibility to the attention of research workers throughout the world. The investigations into the nature of measles, conducted some years ago, resulted in cutting the period of quarantine from twenty-one to ten days, with a consequent gain in school and earning capacity. The recent discovery of a vaccine against Rocky Mountain spotted fever has proved of great financial value to the infected areas of the Northwest. The recognition, etiology and prophylaxis of tularemia represent the only instance in which American physicians alone have solved the complete entity of a disease. A review of the activities of the Hygienic Laboratory in medical research would comprise many columns of print and would reach into the fields of chemistry, pharmacology, zoology, the biologic sciences and a wide range of subjects intimately concerned with the mysteries of health and disease.

The National Institute of Health, therefore, comes into a rich inheritance. It assumes at once the potentialities of a well organized institution with a number of problems under investigation and many others awaiting attack. Functioning under the Treasury Department through the Public Health Service, the institute is placed in a position both conservative and authoritative. The Secretary of the Treasury is authorized to accept, either by will or otherwise, donations from philanthropic sources for the purpose of carrying forward studies, investigations and research in the fundamental problems of diseases of man and matters pertaining thereto. Funds so contributed are in the close control of the government and should be wisely administered for the public good. Donations of $500,000 or over in aid of research will be acknowledged permanently by the founding of suitable memorials to the donors. A system of fellowships is provided for the utilization of such funds. Already the Chemical Foundation has contributed $100,000 to provide for one or more fellowships in chemistry.

Many critics have expressed doubt as to whether or not the government should undertake research supported by private contributions from commercial agencies. It will require the most stringent safeguards to insure absolutely scientific study, honest, unrestricted reporting of results and proper distribution of the fruits of discovery. The development of such procedure should be among the first steps taken in furthering the work of the institute.

Provision is made for expansion in the way of buildings and for the appointment of scientists, who may be chosen for the prosecution of investigations anywhere in the world. Of great importance is a provision that the facilities of the institute shall be available to health authorities of states, counties or municipalities for purposes of instruction and investigation.

The array of problems awaiting solution is imposing. The so-called constitutional diseases, infections of remote or unknown etiology, cellular proliferation and inhibition, and nutritional studies will be taken up at once. The aspects of chemistry in relation to health and disease comprise a field for fundamental research to which the institute has already turned its attention. Biologic processes applied to insect vectors of disease and to principles of immunity and susceptibility are inviting lines of research. Scores of specific problems might be mentioned. The National Institute of Health may well become a responsible organization in the field of medical research, contributing discoveries of untold benefit to man.

MENTAL HYGIENE

The functions of the nervous system involve an intricate maze of activities: the physiologic adjustment of our body to its environment, with association, correlation and synchronization of the various activities of our several organs and our conscious or mental life. A complete understanding of these mechanisms remains one of the most perplexing of scientific problems. Nevertheless, guides are available including certain precautions necessary for maintaining the nervous system in a healthful state. For this hygiene of the nervous system the mastering of a large amount of intricate details of anatomic structure and physiologic function is not necessary.

The adaptability of the mind has intrigued the interest of mankind for many centuries. Environmental observations, experiences and sensations have always been rationalized. Explanations have been sought and interpretations adopted that gave the greatest degree of satisfaction in keeping with the traditions, customs and spirit of the times. During the so-called early prehistoric period, man probably did not speculate much about his origin or why he lived. His works of art during that period do not indicate a familiarity with those speculations and superstitions concerning the metaphysical that so enriched the art of a later period.

Disorders and deviations in the functioning of man's brain were long interpreted, with a coloring of awe and fear, as the result of magic spells or malign influences. Mental alienation was explained as supernatural, preternatural or "touched by God." Thus, these more "fortunate" persons were permitted to wander in freedom or were endowed with immunity and special privileges in the matter of conduct or behavior. Those who threatened the social order were, however, condemned to death, to isolation or to restraint. Seldom does one find an educated person today who believes that mental alienation is the result of the malign influences of evil spirits, witchcraft, the moon or other mysterious agencies; nevertheless there still prevails a general impression of mystery about a mentally disordered person, which produces in others a feeling of awe and fear.

As early as 460 B. C., Hippocrates recognized the alcoholic insanities, described epilepsy and delirium, and instituted certain forms of treatment for those with mental disease. To Pinel, however, is given the credit for the more humane method of treatment for the insane, although hospitals for the care of mentally disordered persons had been erected in Spain some two centuries earlier. The humane methods adopted by Pinel in the treatment of the insane at Salpêtrière were simultaneously adopted by De Quin at Savoy. Similar reforms were instituted at San Bonifaccio in Florence and by Tuke in York, England. These reforms were the torchlights for analytic studies of the symptoms of mental diseases. Thus the nosologists, following the true traditions of medical progress established by Galen, Zacchias and Willis, observed, recorded and classified their observations and gave to medicine the framework of clinical psychiatry. With studies of the gross and microscopic anatomy of somatic diseases, the principles of bacteriology and pathology were applied in an effort to understand disorders of the mind.

Such an approach led to a better understanding of structural alterations of the brain associated with encephalitis, dementia paralytica, senility, arteriosclerosis, Huntington's chorea, toxic delirious states and other organic brain diseases. In this direction, however, the harvest of knowledge has been less spectacular and less prolific than that yielded by a similar approach to the understanding of other somatic diseases. These differences in yield have been due to the great difficulty and complexity of evaluating these so-called materialistic observations as they relate to the function and structure of the nervous system. Perhaps the lack of precise means and methods, or the inability to interpret the results, constituted factors instrumental in swinging medical interests away from a structural and materialistic approach to the problems of mental disease. Thus, more attention was directed to the study of the social and environmental influences and the effects of past experiences that influence an individual's later mental reaction. As the result of such an approach there has developed a series of interpretations which, for convenience, has been designated "psychogenetic philosophies." Such an approach has been the means of explaining the mechanism of mental alienation or mental illness, but much of this explanation savors of being nonmedical, if not unmedical, in its approach. Much chaff has accompanied this harvest, resembling in many respects the "magic art" of another day.

The necessity for keeping the banners of medicine over the mentally ill is best illustrated by the resolutions passed by the Section on Nervous and Mental Diseases of the American Medical Association during its recent meeting in Detroit. These resolutions point out that the problems of mental disorders and mental defectiveness and the subject of mental hygiene constitute one of the most serious situations with which scientific medicine is at this time concerned. The Section on Nervous and Mental Diseases recommended to the House of Delegates that the Board of Trustees of the

American Medical Association be authorized to appoint a special committee of five Fellows of the Association interested in these problems with a view to an investigation of the situation and to the making of a report to the Board of Trustees on the manner in which the American Medical Association can be of service in the solution of these problems.

On June 14 the President signed a bill which establishes a Division of Mental Hygiene in the Office of the Surgeon General of the Bureau of the Public Health Service in the Treasury Department, and authorized the Surgeon General to make such studies and investigations as may be necessary of the abusive use of narcotic drugs; of the quantities of crude opium, coca leaves and their salts, derivatives and preparations necessary to supply the normal and emergency medicinal and scientific requirements of the United States; and of the causes, prevalence and means for the prevention and treatment of nervous and mental diseases. The fact that the Congress of the United States has recognized that mental disorders constitute a problem of national health again indicates the necessity for awakening the medical profession to a sober and scientific approach to the problems of the causes, prevalence and means for the prevention and treatment of nervous and mental diseases.

EAT AND STAY THIN

Many features about the body weight are far from being adequately understood. One frequently hears it stated that the body weight is primarily the result of a sort of physiologic bookkeeping, representing the balance between the intake and the outgo of matter. This is determined in turn by the body's need and use of energy-yielding material. Certain functions by which we live and work call for food fuel; others require suitable substances for the replacement of effete matter—the wear-and-tear quota of the body; and when growth also is involved, nutrients must be retained to meet its demands. Intake of food fuel beyond these requirements almost always results, so we have been told, in deposition of the excess. There are exceptions attributable to the effect of the "whipping up" of metabolism by the foodstuffs, notably the proteins. This is currently spoken of as the "specific dynamic action" of foods. It represents a minor factor under the usual conditions of living. Accordingly, as Wilder[1] has recently remarked in an examination of the conventional point of view, if one's energy exchange each day was 2,000 calories and if one should eat in excess of this amount as little as 90 calories of fat or carbohydrate, this would "stick to the ribs," so to speak, and this amount (10 Gm. of fat) accumulating day after day would mean in the course of ten years not less than 36,500 Gm., or 80 pounds, of extra weight. The 90 calories of excess food, causing this monstrous result, would be contained in a small pat of butter or a single chocolate cream of one of the more luxurious varieties.

Many persons do grow fat. The struggle against obesity is brought vividly to the attention of almost every physician by the complaints of patients who demand to be relieved of the consequences of excessive eating. Investigators have searched for evidence of some abnormality in the metabolism of the obese, but without success. The metabolism of rest, or the basal metabolism, when measured as calories for each square meter of body surface, has been found to be no different in fat and in thin subjects. In simple obesity there is no abnormality of the basal metabolic rate.

Perhaps even more surprising than the widespread occurrence of obesity is the failure of many persons to grow fat under conditions of eating and activity that would lead one to expect the nutritional balance to be favorable to gains in weight. Eating has become, to quote Mrs. Rose, the favorite indoor sport of Americans. Overeating has become a habit with thousands, yet they escape adiposity. Wilder has presented this situation by the remark that there must be some device other than appetite to regulate body weight, because we continue to be protected against obesity, most of us, even though we hoodwink our appetite by various tricks, such as cocktails and wines with our meals. The whole artistry of cookery, in fact, is developed with the prime object, he adds, of inducing us to eat more than we ought. Why, then, do we not all grow fat?

The answer is not easily formulated. In accord with several other modern investigators, Wilder believes that the older physiologists overlooked something important, and that food in excess of what may be called the actual requirements is not deposited by people who stay thin. This brings a return of the old theory of luxus consumption, the burning up of food to rid the body of an undesired excess. It is well known that hyperthyroidism leads to increased metabolism and in many instances to loss of weight. Also epinephrine, secreted by the suprarenals, has a calorigenic action. Its effect is more rapid and sooner over than that of the secretion of the thyroid, but, like thyroxine, it accelerates metabolism. Thin persons are likely to be "nervous" and temperamental, in contrast with the phlegmatic disposition that so often goes with obesity. Emotional stress may lead to liberation of epinephrine; hence the heat production and food fuel waste may be accelerated. According to Wilder there is considerable evidence that this is true and that the individual who gains weight readily reacts to stimuli less intensively, that is, with the liberation of less epinephrine, than one who has no such tendencies. Obesity, he remarks, may not be just a matter of excessive eating. Some abnormality, possibly an inadequacy of the mechanism of luxus consumption, must be present to account for the inability to rid the body effectively of excesses of food.

These facts do not alter the fundamental features of the treatment of obesity. These consist, as has been stressed before in THE JOURNAL,[2] in restricting the intake to below the calorific requirement of the individual. A good working rule is to regard the values of the actuarial tables as minimal optimal values for persons under 30 and maximal optimal values for persons over this age. The guiding principle is to reduce the total calories of the intake and at the same time provide adequately of vitamins and proteins. It is wise, perhaps, to overdo, or at least supply the vitamins abundantly and, except in cases complicated with nephritis and hypertension, to supply protein liberally; that is, in amounts approximating 100 Gm. a day. This is important in order to provide against loss of body protoplasm, also because of the satiety value of meat, and because of the desired high specific dynamic action of meats which are rich in protein. The dicta of Wilder deserve repetition:

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[1] Wilder, R. M.: The Management of Obesity, J. Am. Dietet. A. 6: 91 (Sept.) 1930.

> The intake must be curtailed and the chief problem, then, is how to accomplish this with a minimum of discomfort and without injury. The technic of the procedure is exactly like that which is followed in the management of diabetes. The patient must be trained. Without his intelligent cooperation, nothing happens. He also must want to reduce, and he must understand how to do it. It is usually wiser, the ultimate results being better, if weight is lost very gradually. A too rapid reduction may impair strength of heart or nervous system—the patient feels uncomfortable, loses confidence, and stops the treatment. A reduction which requires more time results in establishing new food habits, so that afterward the patient finds himself able to hold his new weight without conscious effort. In some cases, it seems as though prolonged dieting restores to normal the ability to metabolize food in excess of requirements, that is, the luxus consumption referred to above, so that previously forbidden sweets and fats can be indulged in again without gaining. A weight loss of two pounds a week is as much as should be sought, and one pound is quite enough after the first ten or twenty pounds have vanished.

Current Comment

EFFECT OF DIET ON GROWTH OF FIBROBLASTS

To what extent is it possible to influence the growth of tissues or the development of organs by alterations in the composition of adequate diets? A possible answer to this question has provided the stimulus for many investigations. In view of the various mechanisms in the body whose activity tends to maintain a uniform composition of the nutrient body fluids, it would appear at the outset that little promise of positive results might be expected. Certainly, the alluring hope of controlling the growth of malignant neoplasms through dietary adjustments has received little encouragement from the results of investigation. On the other hand, there is evidence that in the healing of superficial wounds and in the repair of damaged tissues of certain organs there is an accelerating effect of diets rich in protein and a retarding influence of rations containing large amounts of fat. The most recent contribution to this field is that of Harvey and Howes,[1] who report that a complete ration unusually rich in protein favors a more rapid rate of growth of fibroblasts in a healing wound than does a diet with the usual concentration of protein. White rats were used as experimental animals and the wound, a simple incision in the stomach wall, was tested for strength at various intervals after the operation by an ingenious method of inflation of the excised organ. The pressure at which the wound broke served as the index of rate of healing; hence of growth of fibroblasts. During the first four days after the operation—the latent period—no influence of the high protein diet was manifest, but from the fifth to the tenth days there was a decided increase in rate of healing in the group given the protein-rich food. Since it was shown that a difference in energy consumption was not correlated with the changes in velocity of growth of fibroblasts, one is led to believe that here again is evidence of an influence of diet on tissue growth.

THE MEASUREMENT OF VENOUS PRESSURE

Although clinicians are continually concerned with the measurement of arterial blood pressure and are frequently interested in the capillary pressures, one rarely hears of any quantitative consideration of the venous pressures in man. This negligence of the subject cannot be due to any lack of significance of the dynamics of venous blood flow. The venous pressure, which is much influenced by the efficiency of the heart as a pump, has been regarded as one of the most delicate tests of cardiac competence. A rise in venous pressure is common in cardiac diseases, and the venous congestion so produced may have serious consequences. Other interferences with the venous return of blood to the heart are familiar. The failure to measure the pressures existing within the veins more frequently has presumably been due to the inherent difficulties or inconveniences of the available methods. Taylor, Thomas and Schleiter[2] of the Allegheny General Hospital in Pittsburgh have devised a comparatively simple technic involving direct reading of the ascent of the venous blood in a vertical glass tube connected by a hypodermic needle with the lumen of the vessel. Strangely enough, this is a return to the classic method of Stephen Hales, who in 1735 inserted tubes into the jugular vein of a mare and observed the resultant rise of blood. The measurements on healthy persons yielded values between 4 and 10 cm. of blood, with most of the figures ranging between 6 and 8 cm. The average would approximate 5 mm. of mercury, in terms of the customary unit of expression for arterial tension. Perhaps the new methods alleged to possess simplicity, reasonable accuracy and freedom from error of a personal nature will find a useful clinical application in circulatory disorders.

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[2] A Critical Consideration of Obesity, editorial, J. A. M. A. **95**:30 (July 5) 1930.

[1] Harvey, S. C., and Howes, E. L.: Ann. Surg. **91**:641 (May) 1930.

[2] Taylor, F. A., Thomas, A. B., and Schleiter, H. G.: A Direct Method for the Estimation of Venous Blood Pressure, Proc. Soc. Exper. Biol. & Med. **27**:867 (May) 1930.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:15 on Tuesday, and 10 on Saturday, over Station WBBM (770 kilocycles or 389.4 meters).

The program for the week is as follows:

October 20. The Dining Worrier.
October 21. Keeping Books.
October 25. Leisure — What Do You Do with It?

Five minute health talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

October 20. Too Much Speed.
October 21. School Days Should Be Health Days.
October 22. Awakening Dormant Health and Happiness.
October 23. If I Were 21 Again.
October 24. Fashion and Motherhood.
October 25. Wardrobe for the Well-Dressed Baby.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Hospitalization by the University.—The director of the University of California Hospital reports that the outpatient department of the medical school gave care in 1929-1930 to 53,827 women, 57,112 men, 19,321 children and 3,700 infants, and gave free hospital service, including medical treatment or operations, to 1,426 persons who were unable to pay for an average of two weeks' hospitalization. During the fifteen years the sum of treatments for the benefit of the public health in California has just about tripled.

Society News.—The San Diego County Medical Society was addressed, October 14, by Dr. Lyell C. Kinney on "The County Medical Society — A Business Organization."——Dr. John H. Stokes, professor of dermatology and syphilology, University of Pennsylvania School of Medicine, Philadelphia, gave four lectures before the San Diego Academy of Medicine, September 16-19, on "Current Knowledge and Progress in Syphilology."——The Alameda County Medical Society and the San Francisco County Medical Society will meet jointly, October 20, at Oakland; the speakers will be, among others, Drs. Harold Brunn and Bernard Kaufman on "Surgical Pneumonias: Mistakes in Diagnosis and Treatment" and "Precordial Pain," respectively.——A symposium on right-sided lower abdominal pain was held before the San Francisco County Medical Society, October 14, the speakers being Drs. Allan L. Cohn, LeRoy Brooks and Franklin I. Harris.

GEORGIA

Society News.—The Fulton County Medical Society was addressed, October 2, by Dr. Charles B. Upshaw on "Conservative Treatment of Eclampsia," and Dr. W. Frank Wells on "Sociologic Phase of the Medical Profession."——The Richmond County Medical Society was addressed at Augusta, August 21, by Dr. Haven Emerson, New York, on "Periodic Health Examinations."

ILLINOIS

Hearing Tests for School Children.—Arrangements have been made by the Illinois State School for the Deaf, Jacksonville, to provide an experienced staff with audiometer equipment to make free hearing tests of school children wherever desired. The purpose of the service offered is to locate children having hearing defects with a view to promoting treatment when advisable and on recommending suitable modification of teaching facilities when it is necessary. In Illinois more than 200,000 children of school age have defective hearing. Requests for the service should be filed with the state department of public health at Springfield or with the school management at Jacksonville.

Society News.—Dr. Harry M. Hedge, Chicago, addressed the Rock Island County Medical Society, October 14, on "Modern Conceptions and Treatment of Syphilis."——Dr. Isador S. Trostler, Chicago, addressed the McLean County Medical Society at Bloomington, October 14, on "Roentgenotherapy of Conditions Other Than Cancer."——The county medical societies of Crawford, Lawrence, Richland and Wabash were addressed at a joint meeting, September 25, by Drs. Herbert N. Rafferty, Robinson, on "Kidney and Ureteral Stones"; Wendell I. Green, Lawrenceville, "The Use of Glucose," and George T. Weber, Olney, "Medical Disasters."——"Dermatology and Its Relation to General Medicine" was the subject of Dr. Max S. Wien, Chicago, before the Fulton County Medical Society, September 17.——The McDonough County Medical Society was addressed, October 14, by Drs. James G. Carr, Jr., and William C. Danforth, Northwestern University Medical School, Chicago, on "Management of Pregnancy Complicated by Heart Disease."

Chicago

Society News.—A joint meeting of the Chicago Council of Medical Women and the Chicago Medical Society will be addressed, October 29, by Dr. Bertha Van Hoosen on eclampsia which will include a motion picture and a preliminary report of research on colostrum in the eclamptic patient; Dr. Mabel E. Gardner, Cincinnati, will speak on "Multiple Small Peritoneal Cysts of the Fallopian Tubes,." and Dr. Susan R. Offutt, Rochester, Minn, "Chronic Cervicitis."

Nursing for Families of Moderate Means.—The hourly nursing service of Chicago, sponsored by the Joint Committee on Hourly Nursing, has received from the Julius Rosenwald Foundation financial assistance that will cover all of the promotional expenses and one half of the operating expenses of this organization. This service was initiated by the joint committee representing the Central Council for Nursing Education and the First District Illinois State Association of Graduate Nurses in order to bring the best nursing service within the reach of people of moderate means and to furnish nursing by appointment where full-time nursing service is not needed.

INDIANA

Society News.—Dr. George S. Bond, Indianapolis, talked on "Hearts and Heart Sounds" before the Jay County Medical Society at Portland, October 3.——A two-day school for physicians was conducted, October 2, under the auspices of the public health board of Evansville, to which members of the Vanderburgh County Medical Society were invited. Among the speakers were Drs. Carl A. Hedblom, Chicago, on "What Surgery Has to Offer in the Treatment of Pulmonary Tuberculosis"; Charles B. McGlumphy, "Pathology of Pulmonary Tuberculosis"; Gardner C. Johnson, Evansville, "Laboratory Aids"; Paul D. Crimm, "Rôle of the Montoux and X-Ray Findings in Childhood Tuberculosis," and Herman M. Baker, "Nontuberculous Diseases of the Lung."

State Medical Election.—At the annual meeting of the Indiana State Medical Association, September 25, Dr. Alois B. Graham, Indianapolis, was made president; Dr. Franklin S. Crockett, Lafayette, president-elect, and Mr. Thomas A. Hendricks, Indianapolis, reelected secretary. The next annual meeting of the association will be held in Indianapolis, Sept. 23-25, 1931. Among other actions taken by the house of delegates was the adoption of the report of the laboratory men and the Indiana State Board of Health in regard to eliminating free laboratory service by the state board for those who are able to pay; the rejection of a full-time health officer resolution, and approval of the work done by the fact finding committee appointed by Governor Leslie to survey the tuberculosis situation in Indiana in view of determining the best possible locations in the state for sanatoriums for the treatment of this disease. The organization of the Woman's Section of the Indiana State Medical Association was perfected at a meeting of women physicians of the state held following a banquet in their honor. The president is Dr. Nettie B. Powell, Marion; Dr. Kathryn M. Whitten, Fort Wayne, vice president, and Dr. Bonnell M. Souder, Auburn, secretary.

LOUISIANA

Dr. Lewis Celebrates Ninetieth Birthday.—Dr. Ernest S. Lewis, emeritus professor of obstetrics and gynecology at Tulane, was guest of honor at a luncheon, September 24, given by medical colleagues celebrating his ninetieth birthday. Dr. Lewis has been connected with Tulane University for sixty years. He has served as president of the Southern Surgical Association and was elected in 1929 a life member of the Louisiana State Medical Society for his contributions to medical science. The speaker was Dr. Rudolph Matas.

MARYLAND

Courses on Diagnosis of Cancer.—Graduate courses for surgeons and radiologists, held four times a year at the Johns Hopkins Hospital, Baltimore, were announced at the recent three day graduate teaching course on "The Diagnosis and Treatment of Bone Tumors," held under the auspices of the Garvan Research Laboratories and the Copely Surgical Pathological Laboratory of Johns Hopkins University, under the direction of Dr. Joseph Colt Bloodgood. The attendance comprised 363 physicians from 42 states. The plan is to supplement the new courses by correspondence and a system of diagnosis in which roentgen plates are sent in by nonresident radiologists. Another development announced in the war on cancer is the creation of a corporation to advance the science of radiology as it bears on the diagnosis and treatment of cancer. This corporation—the Radiological Research Institute—will finance research workers and fellowships in universities and is made possible by gifts from the Chemical Foundation and its president, Francis P. Garvan. The graduate course given at Johns Hopkins will be repeated before the meeting of the Radiological Society of North America in Los Angeles, December 1-5; the admission is free, but attendance is limited to 800.

Personal.—Dr. Christian Deetjen submitted to the amputation of his left arm at the elbow, October 1, at Mercy Hospital. Dr. Deetjen has been a pioneer in the use of roentgen ray for thirty years. The operation, the eighth which he has had on his arm, is the result of his activities in this branch of medicine.——Dr. John Rathbone Oliver, for fifteen years chief medical officer of the supreme bench of Baltimore, officially ended his court service, September 30. He will assume the chair of assistant professor of the history of medicine at Johns Hopkins University School of Medicine.——John C. Krantz, Jr., Ph.D., has been appointed chief of the bureau of chemistry, state department of health, to fill the vacancy created by the death of Wyatt W. Randall, Ph.D.——Dr. William S. Keister, formerly health officer of Prince Georges County and secretary of the county medical society, has been appointed assistant health officer of Baltimore County.——Drs. Leo V. and Rebecka S. Schneider were recently appointed health examiners of the Playground Athletic League of Baltimore after having spent five years as resident physicians of the Maryland Tuberculosis Sanatorium.——Dr. Gordon Morgan Holmes, London, England, addressed the neuropsychiatric section of the Baltimore City Medical Society, October 8, on "Some Reflexes." Dr. Holmes will spend a month in Baltimore as visiting lecturer in neurology at the Johns Hopkins University School of Medicine. He is physician to the National Hospital for the Paralysed and Epileptic and to Charing Cross Hospital, London, and is also editor of *Brain*.

MASSACHUSETTS

Personal.—Dr. Alton S. Pope has succeeded Dr. Sumner H. Remick as director of the division of tuberculosis of the state department of public health. Dr. Remick resigned to become superintendent of the Middlesex County Tuberculosis Sanatorium, which is in process of construction at Lexington.——Dr. Harold Edward MacMahon, London, Ontario, has been appointed professor of pathology and bacteriology at Tufts medical and dental schools, Boston.

Society News.—The Middlesex South District Medical Society held a symposium on uterine bleeding, October 16; the speakers were Drs. Alonzo K. Paine, Frederick J. Lynch, Marion F. Eades, Frederick L. Good, Louis E. Phaneuf, Foster S. Kellogg and Samuel R. Meaker, Boston, and Charles E. Mongan, Somerville.——"Recent Advances in the Immunology of Infectious Diseases" was the subject of Dr. Edwin H. Place before the Greater Boston Medical Society, October 7.——The William Harvey Society of the Tufts College Medical School, Boston, has announced a course of eight lectures to be delivered on the second Friday of each month at 8 o'clock in the auditorium of the Beth Israel Hospital. The first lecture was given by Dr. Alfred Worcester, Waltham, October 10, on "The Young Adult Male"; the second will be given, November 14, by Dr. Howard W. Haggard, New Haven, Conn., on "Medicine Through the Ages." The society, which was founded last spring by the students of the medical school, seeks to further interest in the art of medicine. In general, the humanities in their relation to medicine will be emphasized rather than the scientific and technical aspects of the subject.

MICHIGAN

Conferences on Communicable Diseases.—The Detroit Department of Health and the Wayne County Medical Society are offering a series of clinical conferences on acute communicable diseases at the Herman Kiefer Hospital, to begin October 29 and continue each Wednesday morning thereafter. This is the second series which deals with the practical problems in diagnosis and treatment, presented by means of case histories and demonstrations of patients; this series of clinics was initiated for the purpose of aiding the physicians by practical demonstration rather than by didactic instruction.

Northern Michigan Children's Clinic.—Arrangements were recently completed in Marquette between Senator Couzens, trustees of the Children's Fund of Michigan and the trustees of St. Luke's Hospital for the establishment of the Northern Michigan Children's Clinic. This is to be housed in a three story fireproof building to be erected this fall and winter on the grounds of St. Luke's Hospital, and will be operated in conjunction with St. Luke's, for the benefit of upper peninsula children. Assistance for the new clinic has been arranged with the University of Michigan Hospital, which will send specialists in for consultation. In the interim, a round-up of children to be brought to the clinic for expert diagnosis and medical or surgical attention will be conducted by a nurse delegated to each county working under the auspices of the Children's Fund. Senator Couzens met health officials at Houghton, September 21, where tentative plans were made for the installing of the modern health unit in Houghton County, which will be served by a physician, a dentist, and three or more nurses.

MISSISSIPPI

Society News.—The Issaquena-Sharkey-Warren Counties Medical Society was addressed, September 9, by Drs. Street on "Carcinoma of the Large Intestine," illustrated; Willard H. Parsons, "Indications for Biopsy," and Noel C. Womack, Jackson, "Intracranial Hemorrhage in Infants."——"Uterine Hemorrhage" was the subject of Dr. Van Buren Philpot, Houston, before the Northeast Mississippi Thirteen County Medical Society at Corinth, September 16; Drs. James S. McLester, Birmingham, Ala., spoke on the anemias; Matthew J. L. Hoye, Meridian, organized medicine; Felix J. Underwood, Jackson, hospitals, nurses and health, and Hunter L. Scales, Starkville, some remarks on the care of so-called maternity cases.——Dr. S. Paul Klotz, McComb, addressed the Pike County Medical Society, September 4, at McComb on empyema; several motion pictures were shown.——The Tri-County Medical Society was addressed at Tylertown, September 9, by Dr. DeWitt T. Langston, New Hebron, on the relation of spasm of the colon to nervous indigestion.

MISSOURI

Missouri Reestablishes the Clinical Years.—The Board of Curators of the University of Missouri, on recommendation of the Missouri State Medical Society and the faculty of the School of Medicine, has authorized the reestablishment of the clinical years in the medical school. While the University of Missouri in 1909 discontinued the two years of clinical work in the medical school, it now seems possible to begin again the teaching of clinical medicine. An outpatient clinic was recently established by the University Hospitals, and cooperation with the Boone County Hospital, with the University Hospitals and possibly with other hospitals will provide a teaching unit. In September, 1931, as many of the present sophomore class as the clinical facilities accommodate will be admitted to the new third year curriculum in the medical school; in the fall of 1932 the senior courses will be inaugurated, and in 1933 the degree of Doctor of Medicine will be granted to students who satisfactorily complete the curriculum. The board of curators for the present will expand the medical school as rapidly as the state and university finances permit. As a two year school, it has been rated class A by the American Medical Association. The University of Missouri is well situated to train practitioners at a low cost to students who probably will remain in the state to practice; it has trained many of the physicians who at present practice in Missouri. The university first provided medical education in 1845, when the medical department was known as the Missouri Medical College in St. Louis. During the Civil War and until 1872 the medical school was discontinued. Then it was reopened at Columbia and in 1891 the medical course was extended to three years, and in 1899 to four years. Following the standardization of medical education inaugurated by the American Medical Association, the board of curators in 1909 discontinued the clinical work because of its cost and the lack of clinical material. For twenty-one years the school of medicine has offered only courses preliminary to the clinical work. During that time the school has rated high as a teaching and research institution. It will be the aim of the school authorities to keep the school in the front ranks with the reestablishment of the clinical years of instruction.

NEVADA

State Medical Meeting and Election. — The twenty-seventh annual meeting of the Nevada State Medical Association was held at Reno, September 26-27. Papers were presented by Drs. George R. Magee, Yerington, on "Relapsing Fever"; Stanley H. Mentzer, San Francisco, "New Methods in the Technic of Cholecystectomy"; Louis I. Breitstein, San Francisco, "Breech Delivery" (with moving pictures); Ralph A. Bowdle, East Ely, "Spinal Anesthesia"; De Los Schuyler Pulford, Jr., Woodland, Calif., "Benzol Poisoning: A Report of a Case Simulating Anemia and Hemorrhagic Purpura"; Benjamin Jablons, New York, "Hypertension"; Edward Matzger, San Francisco, "Seasonal Hay-Fever and Seasonal Asthma —A Preventable Disease," and Claude F. Dixon, Rochester, Minn., "Clinical and Surgical Aspects of Diseases of the Biliary Tract"; James T. Watkins, San Francisco, "Treatment of Severe Flexion Deformities of Hip and Knee Following Neglected Infantile Paralysis." Dr. Robert P. Roantree, Elko, was installed as president of the association, September 26; Dr. Amos C. Olmsted, Wells, was made president-elect, and Dr. Horace J. Brown, Reno, reelected secretary. The next annual session will be held at Ely in September.

NEW YORK

Conference Outlines Plans of State Society. — The executive committee of the state medical society formulated plans at a conference called by President William H. Ross, Brentwood, September 11. Activities in medical education will include a continuation of courses in graduate education, of which eight courses have been arranged to be given before county medical societies; the experiment of a postgraduate clinic day has been arranged at Glens Falls, Washington County, to be conducted by a teaching team from Syracuse University. Medical education will be furthered by short articles in the state medical journal and will show how preventive medicine can be practiced on a person who comes to get treatment for a specific condition. Public health activities are to include a survey of each county to ascertain what form of medical service is needed and to promote it. Other activities include a stimulation of the practice of more preventive medicine by the family physician, better tuberculosis control, active anticancer work and a collection of news of the activities of other sources. The public relations committee will aim to establish free relations with all agencies working in the field of health or curative medicine; it will aid in the development of hospitals by counties, promote public health, and make surveys of every county and a study of medical services and health work among the students and colleges of the state. In an effort to educate people who seek and physicians who give periodic health examinations, the committee plans to do educational work through lay organizations and to stimulate physicians personally in making examinations. Education is also the key note of the work of the physical therapy committee, which plans to send lecturers to medical societies, make surveys of hospitals, and promote the employment of heads of physical therapy departments. It will sponsor training courses for technicians and graduate courses for physicians, promote instruction among medical students, and arrange for physical therapy for workmen's compensation cases.

New York City

Society News.—Dr. Theobald Smith of the Rockefeller Institute for Medical Research, Princeton, N. J., delivered the William Henry Welch Lectures under the auspices of the trustees and medical staff of the Mount Sinai Hospital on "The General Problem of Respiratory Diseases as Illumined by Comparative Data" and "A Comparative Study of Spontaneous and Induced Streptococcus Disease in the Same Species," October 17 and 18, respectively.

Information Service Formed.—The city health department recently inaugurated a tuberculosis information and advisory service as an adjunct to the four diagnostic chest stations operating in the city. The purpose is to curb tuberculosis by further assistance to the family physician in cases in which a patient suspected of having tuberculosis can be sent for a complete diagnostic examination, including roentgen examination available without cost. The service is open to any person believing himself to be suffering from tuberculosis of the lungs. He can get a complete history and if his condition warrants it he will be urged to call on his family physician, who will have him sent to the diagnostic chest station. If the physician decides that the patient should be sent to a sanatorium, he will be referred to the advisory service. So far as known there are about 25,000 known cases of tuberculosis in the city. The prime purpose of this service is to reach each of these tuberculosis contacts in order to check materially the spread of the disease and eventually eradicate it.

NORTH CAROLINA

Personal. — Dr. Clem Ham, director of the Pitt County Health Department, has resigned; he will be succeeded by Dr. Robert S. McGeachy of Lenoir County.——Dr. Frank M. Register, Raleigh, after having been connected with the state board of health for sixteen years, has resigned and become health officer of Wayne County.

Dr. Jacocks Appointed State Health Officer.—Dr. William P. Jacocks, formerly of Windsor, but for the last fifteen years with the International Health Board and for the last ten years in charge of the health work of the Rockefeller Foundation in India with headquarters at Ceylon, has been elected state health officer of North Carolina by the state board of health. Dr. Jacocks succeeds Dr. Charles O'H. Laughinghouse, recently deceased.

Society News. — "Postencephalitic Psychiatric Problems" was the subject, among others, of Dr. Olin B. Chamberlain, Charleston, before the Greenville County Medical Society, October 6.——The Ninth District Medical Society was addressed, September 25, at Salisbury by Drs. John S. Norman, Hickory, on "Mastoiditis"; David S. Asbill, Statesville, "Some Observations on Bronchoscopy"; Oscar B. Darden, Richmond, Va., "Masked Pellagra"; Charles W. Armstrong, Salisbury, "Home Treatment of Tuberculous Children"; Walter F. Cole, Greensboro, "Fractures of the Shaft of Long Bones"; Frank Howard Richardson, Brooklyn, "Some Emotional Problems of Childhood"; James K. Hall, Richmond, Va., "The Physician as Community Counselor," and John T. Burrus, High Point, "Importance of Organized Medicine." The society voted to ask the legislature to repeal the $25 annual license tax which physicians in North Carolina must now pay; they further requested that the statute of limitation for bringing against physicians alleged malpractice be made one year instead of three.

OHIO

Society News.—At the annual meeting of the Northwestern Ohio Medical Association, Toledo, October 7, the program consisted of papers by Drs. John Alexander, Ann Arbor, Mich., on "Present Status of Thoracic Surgery"; Ferris Smith, Grand Rapids, Mich., "Asthma—Its Etiology and Cure"; Ralph Pemberton, Philadelphia, "Arthritis"; Irvin W. Potter, Buffalo, "Abdominal Cesarean Section"; Charles P. Emerson, Indianapolis, "Functional Neuroses Which the Internist Sees"; William C. Quinby, Boston, "Urinary Lithiasia"; Frederick A. Coller, Ann Arbor, "Carcinoma of the Stomach"; Donald C. Balfour, Rochester, Minn., "Recent Developments in the Management of Lesions of the Stomach and Duodenum"; Chester W. Waggoner, Toledo, president, state medical association, "The Importance of the Practice of Medicine to Community," and Mr. Grove Patterson, editor, Toledo *Blade*, "Editors and Folks."——The Warren County Medical Society was addressed at Lebanon, September 2, by Dr. John E. Witham, Waynesville, on "Spinal Meningitis."——Dr. John T. Quirk, Piqua, addressed the Miami County Medical Society at Troy, September 5, on "Diagnosis and Treatment of Pernicious Anemia."——The Shelby County Medical Society was addressed, September 5, at Sidney, by Dr. Benjamin A. Stephenson on infant mortality.——Dr. William B. Hubbell, Elyria, addressed the September 9 meeting of the Lorain County Medical Society on periodic health examinations.——Dr. Robert B. Drury, Columbus, addressed the Perry County Medical Society at New Lexington, September 15, on prostatectomy.——"Oral Surgery, Its Relationship to Physician and Dentist" was the subject of Dr. Hugh W. MacMillan, Cincinnati, before a joint meeting of the Muskingum County Academy of Medicine and the Muskingum Valley Dental Association, September 10.

PENNSYLVANIA

Society News.—The Fayette County Medical Society was addressed, October 2, by Dr. Lester Hollander, Pittsburgh, on "Eczema and Ringworm."——The Montgomery County Medical Society conducted a symposium on mental hygiene, October 1, at Norristown; the speakers were Drs. Frederic H. Leavitt, Joseph McIver and Charles W. Burr, Philadelphia.——The

Washington County Medical Society was addressed, October 15, by Dr. Robert A. Knox, Washington, on "Hypertrophic Stenosis of the Pylorus."

Grant for Study of Cellular Reactions.—The Rockefeller Foundation has announced a $75,000 grant to the University of Pennsylvania for the extension of the method of studying the microscopic details of the growth of living tissues in warm blooded animals. The money is to be paid in instalments of $15,000 a year for five years. The method that has been developed in the department of anatomy consists of the introduction of a transparent double wall chamber or window into a small hole made in the ear of a rabbit. One side of this window is covered with celluloid or glass and the other with a thin sheet of mica. The intervening space is left in contact with the tissues of the ear and from them blood vessels and other living tissues invade the chamber until they form a new layer. This layer is transparent and can be studied microscopically in situ; through its use abnormal cellular reactions and living tissue can be ascertained. Moving pictures of the circulation of the blood in these chambers have been taken. The window method was demonstrated at the recent celebration of medical progress held at the university.

Philadelphia

Personal.—Dr. Virgil Holland Moon delivered the address introductory to the one hundred and sixth annual session of the Jefferson Medical College, September 22, on "Pathology in Relation to Human Life."——Dr. Chevalier Jackson has accepted invitations to give a series of lectures and demonstrations at the St. Louis Hospital, Paris, and the Royal Society of Medicine, London.

Hospital News.—A new building in which fifty tuberculous prisoners may be treated separately was opened, October 1, at the Holmesburg Prison. The cost was $150,000.——The endowment of a free bed in the Germantown Dispensary and Hospital for the use of teachers and other employees of the Philadelphia public school system was provided in the will of Oliver P. Cornman, Ph.D., educator, who died in the hospital, September 6.

University Appointments.—The following appointments at the University of Pennsylvania Medical School, among others, were recently announced: Dr. Earl D. Bond, professor of psychiatry; Dr. Kenneth E. Appel, assistant professor of psychiatry; Dr. Frederick H. Allen, assistant professor of psychiatry. In the Graduate School of Medicine, Dr. Francis W. Sinkler has been appointed professor of neurology; Dr. Leon Herman, associate professor of urology; Dr. Henry F. Page, associate professor of medicine, and Dr. Edward L. Bortz, assistant professor of medicine.

Award of the Next Alvarenga Prize.—The College of Physicians of Philadelphia has awarded the Alvarenga Prize for 1930 to Dr. Henry A. Harris, London, England, for his essay entitled "Cod Liver Oil and the Vitamins in Relation to Bone Growth and Rickets." The next award of the prize will be made, July 14, 1931. The essay intended for competition may be on any subject in medicine but it must not have appeared previously in print nor presented elsewhere in competition for a prize. The essay should represent an addition to the knowledge and understanding of the subject based either on original or on literary research. Each essay must be sent without signature but must be plainly marked with a motto and be accompanied by a sealed envelop having on its outside the motto of the paper and within the name and address of the author. It must be received by the secretary of the college, 19 South Twenty-Second Street, Philadelphia, on or before May 1, 1931. The prize amounts to about $300, being the income for one year from the bequest of the late Senor Alvarenga.

VIRGINIA

Society News.—The Loudoun County Medical Society was addressed, September 9, at Purcellville, by Drs. Walter A. Bloedorn, Washington, D. C., on "New Cardiac Aspects and New Cardiac Therapeusis," and John C. Eckhardt, Washington, D. C., on "Cod Liver Oil: Its Vitamins and Those of Some Other Foods."

The Pellagra Situation.—In view of the general prevalence of pellagra throughout the south, Virginia showed between 1915 and 1924 a decreasing death rate from this disease. Since 1924, however, the death rate in Virginia has risen year by year. There were seventy-five deaths from pellagra in 1924 and 227 in 1929, 16 more deaths than there were from diphtheria and 103 more deaths than there were from typhoid.

State Medical Meeting at Norfolk, October 21-23.—The sixty-first annual session of the Medical Society of Virginia will be held at Norfolk, October 21-23, under the presidency of Dr. Charles R. Grandy, Norfolk, and with headquarters at the Monticello Hotel. The program will include papers by Drs. David R. Lyman, New Haven, Conn., and William S. Thayer, Baltimore (subjects not announced); John Shelton Horsley, Richmond, "Cancer of the Stomach, with Special Reference to Its Incidence, Diagnosis and Treatment"; Claude Moore, Washington, D. C., "Value of the Roentgen Ray in Diagnosis of Lesions of the Colon"; James Edwin Wood, Jr., University, "Significance of Blood Pressure Changes in Hypertension"; Douglas G. Chapman, Richmond, "Thyroid Extract in Treatment of Certain Cardiac Diseases"; William B. McIlwaine III, Petersburg, "Congenital Hypertrophic Stenosis of the Pylorus"; Edgar M. McPeak, Washington, D. C., "Treatment of Carcinoma of Cervix by Radium and X-Ray"; Frank S. Johns, Richmond, "Important Developments in Thoracic Surgery"; Robert Finley Gayle, Jr., Richmond, "Management of the Psychoneurotic"; Staige D. Blackford, University, "Differential Diagnosis of Tularemia"; William B. Huff, Roanoke, "Torsion of the Omentum Presenting Symptoms and Signs of Acute Appendicitis," and Charles P. Cake, Detroit, "Phrenicotomy in the Treatment of Suppurative Pulmonary Disease." A symposium on syphilis will be conducted, Wednesday. The Virginia Pediatric Society and the Alumni Association of the Medical College of Virginia will hold their annual luncheons at this time at the Southland Hotel, and the Virginia Roentgen Ray Society will be the guest of Dr. James W. Hunter, Jr., at the Monticello Hotel. A golf tournament will be held, Tuesday, at the Norfolk Country Club.

WASHINGTON

State Medical Election.—At the annual meeting of the Washington State Medical Association, September 3, Dr. Arvid E. Anderson, Aberdeen, was elected president, and Dr. Curtis H. Thomson, Seattle, was reelected secretary. The next annual session will be held at Aberdeen.

GENERAL

Chamber of Commerce Health Contest.—The U. S. Chamber of Commerce has announced its 1930 interchamber health conservation contest. The object is to assist in reducing economic losses in the United States due to unnecessary illness and death by organizing health committees of local chambers of commerce or similar associations which will assume leadership in cooperating with the official and voluntary health agencies of the community. To stimulate endeavor, recognition will be given the many communities which have been active in the past as well as those which will undertake work of this nature in the future. Each chamber submitting information will have the health conservation work of its city carefully scored. Cities are rated according to their population. Printed schedules covering the items on which the chambers are to be graded must reach the chamber of commerce, Washington, D. C., as soon as possible after the close of 1930. No schedule will be accepted for grading after March 1, 1931. The board of judges consists of the grading committee and the chairman and representatives of the insurance committee of the U. S. Chamber of Commerce.

Report on Supply of Nurses.—The nursing situation was recently investigated by the Committee on the Grading of Nursing Schools, which sent out questionnaires on the demand for nurses in the practice of 4,000 physicians. Of the patients who did not have a special nurse recommended as necessary, it was found that 45 per cent could not afford a nurse; 29 per cent were cared for by relatives and friends; 13 per cent did not want a nurse; 7 per cent were cared for by a visiting nurse, and 6 per cent of these patients, or 2 per cent of the total number, wanted a nurse but could not find one. More than 500 patients who did not want a nurse and did not engage one were, in the opinion of their physicians, in need of skilled nursing care. Twenty-six per cent of the physicians felt that some of their patients could have been cared for by a visiting nurse or hourly nursing service, and 27 per cent felt that the service of relatives or competent servants would have been adequate. Seventy-three per cent of the physicians stated that it is harder for the patient to pay the nurse's fee than to obtain her services. Of 23,500 general practitioners answering concerning the general need for private duty nurses in their practice, 87 per cent said they needed them often, 5 per cent occasionally, and 8 per cent practically never. Twenty per cent of these physicians got their nurses through their own list, while 17 per cent secured them through central registries, 15 per cent from commercial registries, and 5 per cent from unspecified sources.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 27, 1930.

Nullify Law for Preventing Precocious Maternity in India

In previous letters, medical aspects of the Indian situation have been dealt with. The latest census, according to the invaluable report of the Simon commission, shows an excess of 9 million males over females and the gap, which is widest at the ages from 10 to 20, appears to be connected with customs such as purdah, early marriage and unskilful midwifery, which are detrimental to the females. The census shows that 2 million were married before the age of 10. April 1 the Sarda act, which prohibits the marriage of girls under 14 or boys under 18, came nominally into force. It was stated (THE JOURNAL, July 12, p. 137) that, "if adequately observed," it should prove beneficial physically and mentally to women. Unfortunately the condition has proved necessary. In a letter to the *Times*, Miss E. F. Rathbone, member of parliament for the Combined English Universities, a philanthropist and a writer on political and economic subjects, and the leader of the women's movement in this country, points out that one tragic result of Indian politics is that the Sarda act has not been enforced. The council of state has circulated for the opinion of provincial governments a proposal which virtually nullifies the act by permitting exemptions on grounds of "conscientious objection" or "peculiar family reasons"—grounds which between them cover every possible child marriage. The reason for this reactionary proposal is partly that the congress party, which clamored for the act and bitterly reproached the government for its slowness in passing it, is now using it to stir up the orthodox by representing it as the first fruits of a policy of interfering with religious customs: partly that the Moslems are demanding its abrogation as part payment of their loyalty to the government. Miss Rathbone's first reaction to this failure of the government to enforce the act was to consider it guilty of cowardice and cruelty. But none of the many experts on Indian affairs whom she consulted would agree with her. They thought that so long as the reforming and emancipated section of Indians, both men and women, are wholly absorbed in the political struggle and willing to use any weapon to stir up the orthodox against the government, the difficulties and dangers of enforcing this and other social reforms are too great.

The evil, which the tactics of Indian politicans is perpetuating, is revealed in the exhaustive report of a government committee consisting of nine Indians and one British physician. It estimates that nearly half the girls of India are married before 15, that marriages are consummated not infrequently before but usually soon after puberty, and that this custom is diminishing at an exceedingly slow pace. The report declares that early maternity contributes largely to maternal and infantile mortality, in many cases wrecks the physical system of the girl, and generally leads to degeneracy of the race. It points out that Sati (immolation of a Hindu widow on her husband's funeral pyre), which the British government stopped, was rare, but premature maternity is widespread among Hindus and Moslems. If a woman survives the ordeal she is old at 30, a shadow of her former self. "Her life is a long lingering misery and she is a sacrifice on the altar of custom. If legislation was justified for preventing Sati there is ample justification for preventing early maternity both on the grounds of humanity and in furtherance of social justice." Experts estimate the maternal deaths as 15 per thousand confinements and some think that this estimate is far too moderate. Yet reforming Indians, convinced of the enormity of the custom, nullify the law passed to abrogate it and at the same time try to represent themselves to the western world as victims of British tyranny. Before such pretension they should show more consideration for their own women as well as for the pariahs, amounting to 60 millions, who are kept degraded by Hindu custom and whose emancipation, so far, is entirely the work of the British government.

Report of Ministry of Health: Malingering Due to Medical Socialism

The annual report of the ministry of health shows that there are 14,000 physicians on the panel and that the number of insured persons entitled to medical benefit was a little over 14,000,000. Medical benefit cost $43,000,000. Of this the panel physicians received $31,200,000 for attending the insured. The malingering which this system of medical socialism promotes was described in a previous letter (THE JOURNAL, September 6, p. 738). Further proof of its magnitude is shown by the following: As the ordinary panel physician cannot prevent malingering, "regional medical officers" are appointed to whom can be referred cases in which doubts have been raised as to the incapacity certified by the panel physician. This can be done by the societies, by the panel physicians or by the insurance committees. The number of cases referred to the regional medical officers for advice as to incapacity for work was 410,903. But the prospect of examination caused 109,661 persons to "declare off the funds" and thus avoid examination, and 89,750 failed to attend "for other reasons." Thus the number actually examined was reduced to 143,898. Of these, 76,162 were reported as incapable and 67,736 as capable of work. Thus, only just over a third of the claimants of benefit passed the test.

Danger of Wrapping Cheese in Tinfoil

In the report on adulteration of food, a note of warning is sounded with regard to the common practice of wrapping cheese in tinfoil. The analyst found several samples highly contaminated with tin and had no doubt that the person who lodged the complaint that he had been made ill by eating the article was justified. As a result of this disclosure, further samples of wrapped cheese of varying brands were analyzed and in no case were they found free from contamination with tin. The convenient practice of wrapping cheese in tinfoil is therefore declared to be a potential danger and manufacturers are advised to prevent contact between the cheese and the tinfoil by interposing grease-proof paper or other means.

Iodine in Prophylaxis of Goiter

In his Cavendish lecture to the West London Medico-Chirurgical Society, Professor de Quervain of Berne discussed, from his vast experience, goiter and cretinism. Regarding the prophylaxis of goiter by administration of iodine, he pointed out that a daily dose of 0.5 mg. is sufficient to produce in the adult subjects of goiter a clinical picture resembling hyperthyroidism. Therefore if prophylaxis against goiter is to be harmless the dose must be much lower and must be kept within the limits of the physiologic intake of iodine. It must not exceed 1/20 mg. daily. Yet the dose used in the United States added to table salt is forty times this. The professor did not commit himself to any statement as to whether Americans could take this dose with impunity but said that it would be dangerous in Switzerland.

Sterilization of Mental Defectives

The sterilization of mental defectives is still a topic in the press. In THE JOURNAL, Aug. 23, p. 605, a bill about to be drafted by the Eugenics Society authorizing the sterilization of a mental defective, subject to the consent of the parent or guardian and the lunacy authority, was described. In a letter to the *Times*, Prof. Julian Huxley supports the proposal by showing that the law on sterilization is chaotic, if the operation is performed for any other purpose than the improvement of the individual's health. It appears to be possible that if a man had himself sterilized to prevent transmission of some grave hereditary taint, both he and the surgeon who performed the operation might be subject to a legal penalty. The law is so obscure that most surgeons would not take the risk. Though the committee of the Eugenics Society is aware that insanity does not present the same straightforward problem as regards inheritance as does mental defectiveness, it has inserted a clause legalizing voluntary sterilization in any one afraid of transmitting hereditary defect. At present this is virtually impossible. There are numerous cases of insanity running in families. A sufferer who has married before the onset of his complaint may during his spells of mental health be anxious to be relieved of the fear of procreation. But the committee has no thought of trying to force sterilization on insane persons or on any one with a heritable defect.

PARIS

(From Our Regular Correspondent)

Sept. 24, 1930.

The Epidemic of Poliomyelitis

The epidemic of poliomyelitis, which has lasted for three months, is dying out. There are at present only a few isolated cases. The epidemic started in the vicinity of Strasbourg, which remained its chief center and furnished the largest number of cases (293). From Strasbourg it extended toward the north to Moselle (sixty-seven cases) and to the south to Belfort, by way of Mulhouse. The points attacked formed gradually an incomplete circle about Paris, which was not directly affected. The most distant points reached were Normandy on the west and Châlon-sur-Saône on the south. The epidemic has died out completely in Alsace. The complete history of this epidemic cannot yet be written as the authorities were cautious about giving out information during the summer vacation period for fear of awakening undue anxiety in the minds of travelers and tourists. No document has been published as yet containing the list of localities infected, the number of cases and the number of deaths—not even the documents communicated to the commission of the League of Nations, which gave exact information in regard to cases observed in Switzerland, Austria, Germany, Sweden, Belgium and the Netherlands. As to France, they refer only to Alsace and to Lorraine, as if the epidemic had been confined to these two regions. The newspapers, however, contained many references to small areas of infection outside those regions. All that is known is that the epidemic has been widespread and fairly severe. Some cases were fatal within forty-eight hours. The disease attacked an unusually large number of persons beyond the age of childhood. Several soldiers between 20 and 25 years of age contracted the disease, and the cases in older persons were always severe. The mode of propagation remains an enigma. It has happened that cases have developed in villages located 100 kilometers (62 miles) from the nearest village infected, and without there having been any inhabitants transported from the latter to the former. In new areas of infection, one sometimes observed two or three cases appearing almost simultaneously, without any further cases succeeding. The report of Professor Levaditi and Dr. Jules Renault, who were delegated by the minister of health to follow the march of the epidemic, is eagerly awaited. The antipoliomyelitic serum of Prof. August Pettit has proved exceedingly effective whenever it has proved possible to procure a sufficient quantity and to use it from the beginning of the disease. Calls of physicians in isolated villages for supplies of the serum were often broadcast over the radio.

Ceremonies in Honor of a Predecessor of Pasteur

A group of physicians of the region about Pau (Basses-Pyrénées) celebrated recently, in that city, the memory of their compatriot Dr. Duboué and had affixed to his home a tablet setting forth the stages of his career. The ceremonies were presided over by Dr. Doléris, member of the Academy of Medicine and a native of this region. He recalled that Duboué, in addition to his research on typhoid and cholera, had been the first to discover that the virus of rabies finds its way from the initial wound to the brain by way of the nerves and not through the blood stream. His work was published in 1879. It was two years later that Pasteur read to the academy his own work on rabies, in which he recognized the priority of Duboué.

Cancer and the Endocrine Glands

Among the countless theories in explanation of the origin of cancer, one puts forward the inhibitive and the stimulative action of the endocrine glands on the proliferation of cells that characterize the neoplasm. Arloing, Josserand and Charechon of Lyons have announced an observation that may throw light on certain phases of the problem. They injected into the rabbit ground elements of cancerous tumors produced experimentally in the mouse. As a result, the suprarenal capsules of the inoculated rabbits became the seat of a cellular superactivity in the cortical layer, which was, however, only temporary. These suprarenal capsules during this period became capable of arresting the development of neoplasms in the mouse, when implanted in the tissues of the mouse by grafts or when a glycerin extract is injected under the skin of the mouse. These curious facts have been substantiated by Sokolov, who obtained the same results as the three scientists of Lyons. The latter are endeavoring to apply these laboratory data to man. They have observed that under the influence of fragments of human tumors (pharyngeal and mammary epitheliomas) the suprarenals of the rabbit react still more rapidly than with the epithelioma of the white mouse.

Tuberculosis Among Teachers

The minister of public instruction has decided to strengthen the measures employed to discover tuberculosis among the teachers in all the lycées and colleges, by reason of the danger incurred by the pupils if there are cases of tuberculosis among the teaching or administrative personnel. At present, candidates for positions in these schools are subjected to a medical examination. The minister of public instruction has ordered that, at the end of a year, teachers must submit to a special examination by an expert and sworn phthisiologist, who, if he finds evidence of tuberculosis, may send the teacher or school officer to a sanatorium for treatment. As for teachers living with their families in an educational institution, if a member of their family becomes tuberculous, he must be removed from the institution, and all precautions must be taken to prevent infection spreading among the pupils.

The Prophylactic Institute

The Institut prophylactique, the purpose of which is the prophylaxis and the treatment of venereal diseases, occupies in Paris an immense building on the bank of the Seine and comprises a large number of consultation rooms and laboratories. At its last general assembly, Dr. Arthur Vernes, director of the institute, reported that the number of consultations given in the services last year reached 239,284. From Nov. 1, 1929, to June 30, 1930, the institute recorded 202,000 consultations. The monthly average for last year was 19,940 and in 1930 reached 25,250. New services are to be opened at Brest, Marseilles, Sèvres, Pantin, Bourget and Vert-Galant. A branch of the Institut prophylactique, located in Algiers, has recently been inaugurated by Mr. Pierre Bordes, governor general of Algeria. Through an agreement with the director general of the government railway system, a connection is to be established between the dispensaries of the Institut prophylactique and the medical services of the railway system. In accord with the minister of the colonies, a plan of organization for the crusade against syphilis in the colonies was worked out by Dr. Vernes and approved by the assembly. Dr. Marcel Léger, formerly director of the Pasteur Institute in Dakar, French West Africa, and Dr. Gustave Martin, formerly director of the public health service in Kamerun, will give a special course of instruction for colonial officials: missionaries, administrative officers, directors of factories, and the like. Those who take the course will receive, thus, ideas that will enable them, under medical direction, to participate in the crusade against endemic diseases (smallpox, typhoid, malaria, syphilis, tuberculosis).

The Albert Blum Scholarships

Mr. Albert Blum, president of the Féderation des Alsaciens et Lorrains d'Amériques, has founded six scholarships at the University of Strasbourg and four at the University of Nancy. The latter afford 10,000 francs ($400) for a period of five years and are awarded to a professor of the faculty to enable him to continue his personal researches or studies.

Deaths

Dr. Valude, ophthalmologist, has died, at the age of 72. Since 1890, he had been chief physician of the old and celebrated hospital "Quinze-Vingts," founded in the middle ages by the king St. Louis, and which has always been under the directorship of eminent specialists. He was the author of many works on ophthalmology.

Dr. Léri was an agrégé professor of the Faculté de médecine de Paris and physician to the hôpitaux de Paris. A pupil of Pierre-Marie, he became an anatomopathologist, specializing in studies on the nervous tissues and the bone tissues. He was just under 50 years of age at his death.

ITALY

(From Our Regular Correspondent)

Sept. 15, 1930.

International Congress of Microbiology

The first International Congress of Microbiology, held recently in Paris, was attended by many Italian scientists. The head of the Italian official delegation was Prof. Serafino Belfanti, director of the Istituto sieroterapico in Milan.

Professor Sanarelli of the University of Rome reported the results of his research on the pathogenesis of cholera. The topics discussed by Professor Sanarelli were: intestinal cholera in new-born animals; choleraic peritonitis in guinea-pigs; choleraic algidity. The speaker stated that the normal gastric content of young rabbits constitutes, by reason of its marked acidity, an insurmountable barrier to the vibrios of cholera. When the vibrios come in contact with the buccal mucosa, in order to reach the intestine they have to make a detour. They possess the peculiar property that Sanarelli terms "enterotropism," indicating that their ultimate objective is the intestinal walls, even when they are inoculated into the organism by the subcutaneous, the intravenous or the peritoneal route. Having reached the walls of the intestine by a detour, the vibrios develop their peculiar pathogenic action, which causes the death of the young animals through a toxic process that follows. Speaking of choleraic peritonitis in guinea-pigs, the author, in contrast with what is commonly held in regard to bacterial lysis on the part of the peritoneum, has observed that, on being injected into the peritoneum, vibrios enter the blood stream through the lymph glands and direct their movements toward the stomach and intestine, where they provoke an acute gastro-enteritis. The phenomenon just described Sanarelli terms "gastro-enterotropism." Taking up the topic of choleraic algidity, Sanarelli pointed out that in man cholera is not a simple enteritis, since it may cause algidity. In animals it is characterized by hypothermia and arterial hypotension, asphyctic phenomena, muscular contractures, and anuria. These facts appear as the expression of an anaphylactic phenomenon and are associated with anatomic and humoral changes. There will always be noted, among other things, a considerable desquamation of epithelium of the mucous surfaces, which Sanarelli terms "epithalaxia."

In the discussion, Professor Hahn of Berlin, declared that he shared, to a great extent, the ideas presented.

Professor Bonfanti, in collaboration with Professor Sachs, offered a paper on the significance of lipoids in immunity, giving the results of his own research and of his "school" on various lipoid substances of the organs of mammals, which have spontaneously a hemolytic action. Likewise lipoids of other origin acquire a hemolytic property under the enzymic action of the venom of serpents, bees and wasps. The speaker distinguished different phases of lipoid degeneration in organ extracts, bringing out the results of his observations on the relations existing between the lipoids and the fixation properties of the serum. The importance of lipoids in immunization phenomena and in the pathogenesis of various morbid states is thus fully established.

Professor Vernoni of the University of Rome spoke on undulant fever and epizootic abortion. Professor Carbone of Milan presented a communication on the immunity of plants.

The Death of Professor Pescarolo

The death of Prof. Bellom Pescarolo, of the University of Turin, is announced. Born at Turin in 1861, he was graduated in medicine and surgery in 1885, accepting soon after a post as assistant in the Ospedale di San Giovanni and later in the Clinica medica universitaria in Turin. His researches were carried on in the field of neuropathology, and for that specialty he acquired in 1890 the venia legendi. That year, in *collaboration with Professor Caponotto, he performed* for the first time in Italy the operation for the extirpation of a tumor of the spinal cord. Later, in collaboration with Professor Carle, clinical surgeon of Turin, he furnished a valuable contribution to the surgical studies on the central nervous system. He cultivated also certain branches of medical radiology. In 1923, he established (contributing personally 100,000 lire toward the project) the first Italian center for the study and the treatment of malignant tumors. In recognition of his scientific and his professional services, he received, many years ago, the honorary title of "senator."

Postgraduate Course in Industrial Medicine

The University of Rome, as the result of the recommendation of the Facoltà medica, has decided to organize a postgraduate school in industrial medicine. The director of the school will be, *ex jure*, the president of the Facoltà medica di Roma. The course will occupy two years and will include instruction in the fundamental matters of industrial medicine and general lectures by the directors of the medical clinics and institutes of the university. The courses will be held in the Policlinico del lavoro, which will permit the use of its facilities, including the persons who appear for consultation and treatment. During the first months of activity, more than 6,300 workmen have visited the Policlinico.

Work of Women and Children in Factories

According to recently published statistics, there have been employed in factories, during the current year, 172,615 women and children, in contrast with 147,944 during the previous year. In northern Italy, the majority of the children employed in factories were girls, while in southern Italy and in the islands the majority were boys. In fulfilment of the demographic policy adopted by the government for the protection of the human race, the age limit at which children may first be employed has been continually raised. This year, as compared with last year, there has been a decrease of 3.4 per cent in the number of children 12 years of age and an increase of 1.7 per cent in the number of children between the ages 14 and 15.

In contrast, the number of girls 12 years of age has decreased by 3.1 per cent and the number of girls aged 16 has increased 5.8 per cent.

The Crusade Against Tuberculosis

In accordance with agreements reached with the general management of the public health service, the ministry of war has recently issued new instructions with a view to assuring the application of the necessary prophylactic measures and the institution of medical aid for the conscripts and for military men dismissed from the service because of tuberculosis. The managements of the military hospitals must report to the bureaus of the provincial physicians all the dismissals from the military service on account of tuberculosis, indicating also the precise diagnosis and the particular type encountered, together with a statement as to whether or not the subject was insured against tuberculosis.

Reports on Activities of University Laboratories

The minister of public instruction has ordered that all the directors of university consultation centers, laboratories and institutes shall furnish the minister an annual report on their didactic and scientific activities for the preceding academic year. The report must state the number of class sessions held by the professors. A distinction must be made between scientific researches in course of execution and those that are brought to completion, including publications if any.

VIENNA

(From Our Regular Correspondent)

Sept. 25, 1930.

Congress of League for Sexual Reform

The fourth Congress of the International League for Sexual Reform on a Scientific Basis, held in Vienna, September 17-24, was attended by 650 physicians, psychologists and sociologists from all countries of the world. The chief topics dealt with by the scientific part of the session were: (1) the bad housing situation and sexual reform; (2) sexual stress; (3) sexuality and the inner life; (4) internal secretions; (5) the history of sexual morality; (6) sexuality and the judicial system; (7) birth control and economy of the human species, and (8) the rights of children. Dr. Magnus Hirschfeld of Berlin served as chairman. The inaugural address was delivered by the president, who pointed out that the purpose of the congress was to apply to life itself and to its manifestations the range of modern scientific knowledge that had been gained in regard to the relationships growing out of the sexual life and love between the sexes. The first main topic was discussed by Professor Tandler, head of the health service of the city of Vienna. He emphasized that, along with the need for food, the need of shelter is of paramount importance for the population because it exerts a direct and powerful influence on sexuality and the moral life. The housing situation after the war was bad. In Germany and Austria a family of five members has, on the average, 1.4 living rooms; in France the average is 2.5 and in England 3 rooms. Before the war, 72 per cent of all dwellings in Vienna consisted of 2 rooms, at the most. Such homes sheltered 67 per cent of the inhabitants of Vienna. It goes without saying that the sexual conditions in these small apartments were monstrous. In such crowded quarters, in which children sleep in the same beds with the parents or other adults, there can be no healthy sexual life. Thirty-four per cent of the children with venereal disease, in the Vienna hospitals, became infected through persons who had shared their beds. Hence, sexual reform presupposes a housing reform on a modern basis. Mr. Toller, the communistic writer, presented the subject of sexual stress as affecting criminals living in prisons. The usually strong vitality and sexuality of the persons of both sexes who are inclined toward crime are frequently impaired by forced confinement and directed toward perversions of various types (homosexuality), which habits unfortunately persist after dismissal from prison. Mr. Toller demands that, from time to time, every prisoner, on request, be granted a week's leave of absence for sexual reasons, as is done in Russia.

Dr. Leunbach of Denmark pointed out that the weakminded in institutions usually have weak sexual desires. He approved their sterilization on eugenic grounds; which would make it possible to send them back to their relatives. Frau Dr. Krausfessel of Berlin discussed sexual perversions in children, and presented shocking figures on the frequency of sexual diseases in children and on sexual relations between school children, which are surprisingly frequent in rural regions and offer a wide field for sexual reform in accordance with the suggestions of August Forel.

Particular interest was awakened by the addresses of Frau Dr. Elberskirchen of Berlin and Dr. Wexberg of Vienna, both of whom took the stand that often too great importance is assigned to sexuality with reference to the psychic or inner life of the individual. Both emphasized that the solution of these problems lies in giving children such training as will develop self-control, though, as Professor Winkler of Vienna brought out, some remedies may render good service as sedatives. Similar views were expressed also by Professor Spiess of France, who denied absolutely the far-reaching importance of sexuality for human existence that is ascribed to it, more particularly by Freud and his followers. It is true, sexual desire is a strong, impelling force but only for a few years, as a rule; and it is often subordinate to other instincts.

Dr. B. Schapiro of Berlin discussed the action of the anterior lobe of the hypophysis on the development of the male genitalia. This so-called motor of the sexual function has in recent years (more particularly by the biologists) been brought into the range of scientific research.

An interesting philosophical presentation on the "History of the Growth of Moral Conceptions Pertaining to Sex Life" was offered by the German scientist Rudolph Goldscheid. He showed in an analysis of conditions that the sexual morals of a given period or epoch are conditioned by the desires and the needs of the social class that is dominant at the time.

The conventionists manifested great interest in the address of Geheimrat Dr. Wolf of Berlin on the status of abortion in criminology, which was followed by a discussion on birth control. Professor Wolf brought out that conceptions of right and wrong change from time to time and that theology, jurisprudence and medicine often differ on various points. For example, up to 1869, the Catholic church took a lenient attitude toward abortion, but since 1869 it has shown stern opposition. Plato and Aristotle regarded abortion up to the eightieth day as permissible, while in later periods the church distinguishes two periods, an early period in which the embryo was regarded as not possessing a soul and a later period in which the soul was considered to have entered; hence, abortion during the early period was not punishable. The church came to hold the view that the soul did not enter the embryo until the third month of pregnancy. The present attitude of mankind toward abortion recognizes social reasons for the destruction of the life germ, whether it takes place through prevention of conception or through abortion. Abortion is exceedingly common —much more widespread than would be assumed from the number of court trials for its perpetration. Scarcely 1 per cent of the actual number of cases come before the courts. The prohibition against abortion causes the death in Germany of 6,000 women yearly, owing to abortion carried out in an unprofessional manner by so-called wise women or midwives. The danger is much greater among the lower classes than in the middle and the upper circles of society. For these reasons mankind demands a modification of the existing laws pertaining to the interruption of pregnancy. Prof. Magnus Hirschfeld emphasized that modern laws with reference to the punishableness of homosexuality likewise need modification.

The question of birth control gave rise to an animated discussion. In her paper, Madame A. Popp of Vienna emphasized that contraception is the most important factor in the conscious regulation of posterity. Before the war, the methods of birth control were little known among the lower classes of the population and were not employed to any great extent in the upper classes. Only through the stress of the past fifteen years and the endeavors of many sociologists and physicians has a knowledge of the methods of birth control become widely diffused. In all the larger cities of central Europe, and also in England and in France, there are consultation and instruction centers where women may procure suitable aid in the prevention of conception.

Dr. Norman Haire of London and Dr. Leunbach of Copenhagen discussed the instrumental apparatus and methods employed by them for the prevention of pregnancy; but a number of the physicians present (more particularly, women physicians) opposed these methods as dangerous. The congress was informed that in England a large and active group of physicians is dealing with the problem and that the conservative circles are coming to the aid of the lower classes.

In addition to the presentation of the session papers, there was an instructive exhibit, which dealt with sexual pathology, as revealed in wax models, pictures, apparatus and various preparations. Likewise, a large number of chemical and biologic remedies, hormones and microscopic preparations were shown, so that the visitor could get a clear conception of the progress of the whole movement.

MOSCOW

(From Our Regular Correspondent)

Aug. 11, 1930.

Care of Mothers and Children

The care of mother and child in the Union of Socialist Soviet Republics is effected by a number of institutions of open and of closed type. Their function is educational as well as medical with expectant mothers and children.

An attempt is being made now to disseminate a healthy conception of sexual physiology quite early in the high schools. For this purpose in some schools lectures on sex hygiene are given. The pupils visit the Institute of the Protection of Motherhood and Childhood, where young girls acquire practical information in the care of infants. Analogous educational work is conducted in the marriage registry offices. Here a physician conducts a short discussion with the bride and groom on such subjects as sex hygiene, dangers of abortion, and the symptoms of venereal disease.

The care of pregnant women is carried on in the cities through the "regional consultation" offices (state clinics). These are adequate to the needs and practically all expectant mothers pass through them, receiving medical attention. Here each woman receives instructions as to the hygiene of pregnancy and the essentials of infant care. Discussions and lectures are given and expositions of the Institute of the Protection of Motherhood and Childhood are visited, where diagrams, pictures and specimens illustrating the development of the fetus and the act of labor are shown. Also rational and irrational infant feeding is demonstrated and the fight against antiquated methods is conducted successfully.

At the same time expectant mothers are given medical examination and a routine Wassermann test is performed. Thus the syphilitic are discovered and transferred to special institutions for treatment, which is undertaken before delivery. Social workers follow up the patients, check on the carrying out of the medical advice given, and give further detailed instructions.

The state clinics include a "commission on abortions," which controls the interruption of pregnancy. The legalization of abortion and its performance in well equipped clinics by competent specialists has reduced mortality to a low figure. The state clinic also determines the time for an obligatory cessation of factory work in each individual case and assigns the woman to a maternity hospital. This period of rest embraces about one and one-half to two months before delivery and from one and one-half to two months after; all this time the mother receives her regular salary.

At birth a certain amount of money is paid for buying all the necessary infant equipment and clothing, and a regular allowance is paid for nine months. The maternity hospital receives all the information on file at the state clinic about the course of pregnancy; thus each patient arrives in the maternity ward as a well known, well studied subject. The maternity hospitals again instruct the mother in feeding rules and infant care.

Further care of infants and children is accomplished by the state infant welfare stations, where all the information on file is forwarded from the maternity hospitals. These take care of children up to the third year. Here the babies are weighed and measured regularly and their feeding is controlled. Here also the mothers unable to feed their infants receive a supply from the "milk kitchen" or from the "stations for the accumulation of woman's milk." The latter are institutions where nursing mothers give away the excess of their milk supply under medical control. The social workers see to it that mothers follow the medical advice given. For children over 1 year of age there exist dietetic dining rooms where they receive the proper food.

There are also a number of infant and child stations, the crèche, where mothers working in factories place their children. In accordance with the law, the nursing mother is released from work to feed her baby at the necessary intervals. Of course, there are similar stations for night workers. These infant and child stations are under the control of a physician and specially trained nurses. The infants are there given the proper care, while the older children are educated, particularly along the lines of cooperation, developing the spirit of collectivism. From these stations the children who have reached the proper age are transferred to the kindergartens.

Among the closed institutions, the "houses for homeless mothers" deserve mention. Here the mothers who have just recently delivered and who have no home of their own live for nine months with their babies. These houses are organized as labor communes, as each woman is supposed to do some kind of work.

The "houses for mother and child," another closed institution, provide a home for the mother and the new-born baby for two months. The "house for infants" serves for the raising of foundlings. Likewise children of parents unable to raise them, because of peculiarities in their trade or other conditions, can be placed here in the hands of a medical personnel until they are 1 or 1½ years old. Afterward they are placed in the kindergartens, where they are educated.

Marriages

Edwin Pratt Jordan, Homewood, Ill., to Miss Marjorie Crighton of Brandon, Vt., September 18.

Douglas Doriot Vance, Bristol, Tenn., to Miss Katherine Millner at Norfolk, Va., September 24.

Harvey H. Seiple, Lancaster, Pa., to Miss Elizabeth S. Hostetter of Florin, August 1.

Alexander Marble, Troy, Kan., to Miss Beula Becker in Tremont, Ill., September 20.

Harry S. Fist, Los Angeles, to Miss Beatrice Elise Flesher of Denver, October 4.

Ralph B. Green, Chicago, to Miss Rose Brenner, May 21.

Deaths

James Madison Woodson ⊕ Temple, Texas; Medical Department of the Tulane University of Louisiana, New Orleans, 1891; member of the American Academy of Ophthalmology and Oto-Laryngology, the American Laryngological, Rhinological and Otological Society and the American College of Surgeons; on the staff of the Woodson Eye, Ear, Nose and Throat Hospital; aged 62; died suddenly, September 30, of heart disease.

Leland C. Ellis ⊕ Dallas, Texas; University of Texas School of Medicine, Galveston, 1912; associate professor of clinical surgery, Baylor University College of Medicine; served during the World War; proctologist to the Baylor Hospital and the Parkland Hospital; aged 45; died, August 24, in Carlsbad, N. M., of injuries received in an automobile accident.

Samuel Preston Cunningham ⊕ San Antonio, Texas; Medical Department of the Tulane University of Louisiana, New Orleans, 1898; member of the American College of Surgeons; past president of the Bexar County Medical Society; aged 55; died, August 25, in a local hospital, of carcinoma of the bladder.

Sarah Elizabeth Maule Holland ⊕ Norristown, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1925; on the staff of the Montgomery County Hospital; medical inspector for the Norristown schools; aged 30; died, August 28, in the Woman's Hospital, Philadelphia, of pernicious anemia.

William L. Kneedler ⊕ Major, U. S. Army, retired, Coronado, Calif.; Jefferson Medical College of Philadelphia, 1879; entered the army as assistant surgeon in 1883 and was retired in 1906 for disability in line of duty; veteran of the Spanish-American War; aged 75; died in September.

Murrett Fauquier De Lorme ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1900; member of the American College of Physicians; formerly clinical professor of medicine at his alma mater; on the staff of the Lutheran Hospital; aged 62; died, September 8, of heart disease.

Guy Herbert Jacobson, Taylorville, Ill.; Chicago College of Medicine and Surgery, 1916; Northwestern University Medical School, Chicago, 1922; member of the Illinois State Medical Society; served during the World War; aged 39; died, September 8, of osteogenic sarcoma.

Walter Haskell Harper, Gadsden, Ala.; Medical College of the State of South Carolina, Charleston, 1916; member of the Medical Association of the State of Alabama; county health officer; aged 37; died, September 6, of a self-inflicted bullet wound.

David A. Ledbetter, Crandall, Texas; Barnes Medical College, St. Louis, 1900; member of the State Medical Association of Texas; aged 54; died, April 14, in the Baylor Hospital, Dallas, of pneumonia, following an operation for cholelithiasis.

Ralph Randolph Holmes ⊕ Chicago; College of Physicians and Surgeons, Chicago, 1906; formerly senior instructor in medicine at his alma mater; on the staff of the Englewood Hospital; aged 56; died, September 26, of chronic myocarditis.

William Jacob Egloff ⊕ Mason City, Iowa; Chicago Medical College, 1887; member of the American College of Surgeons; aged 67; died, September 8, in St. Luke's Hospital, Chicago, of coronary thrombosis and pernicious anemia.

Lewis Ernest Martin ⊕ Anguilla, Miss.; Medical Department of the Tulane University of Louisiana, New Orleans, 1905; past president of the Sharkey County Medical Society; aged 49; died suddenly, September 6, of angina pectoris.

Samuel Porter Tuttle, Grand Rapids, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1898; member of the Michigan State Medical Society; aged 61; died, August 31, in Diamond Lake, of cerebral hemorrhage.

Reed Burns, Dalton, Pa.; University of Michigan Medical School, Ann Arbor, 1876; member of the Medical Society of the State of Pennsylvania; aged 85; died, August 23, in Glenburn, of arteriosclerosis.

August Edward F. Grempler, Baltimore; Baltimore Medical College, 1889; on the staffs of the Franklin Square and West Baltimore General hospitals; aged 64; died, August 8, of chronic myocarditis.

Sumner E. Darling, Hardwick, Vt.; University of Vermont College of Medicine, Burlington, 1882; member of the Vermont State Medical Society; aged 73; died, April 8, of angina pectoris.

Hiram Belden Ormsby ⊕ Cleveland; Cleveland College of Physicians and Surgeons, 1897; aged 59; died, September 23, in a local hospital, of peritonitis, following an operation for appendicitis.

Frank Thomson Brough, New York; Medical Department of Columbia College, New York, 1889; aged 69; died, September 20, in the Nassau Hospital, Mineola, of poison, self-administered.

Jane Crombie Trull, Elgin, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1905; member of the Illinois State Medical Society; aged 58; died, September 6, of heart disease.

Theodore Fred Estel, Altenburg, Mo.; Marion-Sims-Beaumont Medical College, St. Louis, 1902; member of the Missouri State Medical Association; aged 50; died, August 26, of nephritis.

John Alonzo Rowles ⊕ La Crosse, Wis.; Rush Medical College, Chicago, 1883; on the staff of the Methodist Hospital; aged 76; died, September 13, of carcinoma of the prostate and bladder.

Charles O. Wiltfong ⊕ Chesterton, Ind.; College of Physicians and Surgeons, Chicago, 1901; aged 54; was instantly killed, September 9, in an automobile accident near Belleville, Ont.

George F. Hale, Detroit; Detroit College of Medicine and Surgery, 1917; member of the Michigan Medical Society; served during the World War; aged 51; died, August 31.

Albert Russell Hornbeck ⊕ Lincoln, Neb.; Lincoln Medical College, 1910; aged 46; on the staff of the Lincoln State Hospital, where he died, August 2, of heart disease.

Raymond Jacob Bower ⊕ Williamsport, Pa.; Jefferson Medical College of Philadelphia, 1917; aged 38; was found dead, September 7, of illuminating gas poisoning.

Fortunato Hernandez, Los Angeles; National University Faculty of Medicine, Mexico City, Mexico, 1886; aged 68; died, July 23, of arteriosclerosis and cystic nephritis.

William Thomas Johnston ⊕ Chicago; Chicago Medical School, 1926; aged 44; died, September 22, of chronic myocarditis and terminal pulmonary edema.

Arthur LeRoy Wheeler, Mason City, Iowa; Rush Medical College, Chicago, 1875; formerly city health officer; aged 79; died, September 14, of heart disease.

Samuel Holman Simon, Harrisburg, Pa.; Hahnemann Medical College of Philadelphia, 1880; aged 90; died, August 5, of chronic myocarditis and nephritis.

Fred V. Stucky, Muncie, Ind.; University of Louisville (Ky.) School of Medicine, 1884; aged 68; died, September 8, of chronic myocarditis and nephritis.

Claus F. P. Korssell, Chicago; Rush Medical College, Chicago, 1886; aged 67; died, August 27, of cerebral hemorrhage and arteriosclerosis.

David Henry Taylor, Chicago; Miami Medical College, Cincinnati, 1878; aged 82; died, September 25, of pernicious anemia and chronic myocarditis.

Charles A. Sewell, Washington, D. C.; Howard University School of Medicine, Washington, 1893; aged 62; died, August 31, of chronic nephritis.

Henry Carter, Bringhurst, Ind.; Eclectic Medical Institute, Cincinnati, 1892; aged 81; died suddenly, September 5, of cerebral hemorrhage.

Robert Young Hindman, Columbia, Ky.; University of Louisville School of Medicine, 1902; aged 56; died, August 14, of diabetes mellitus.

Gracchus Crawford Harris ⊕ Courtney, Texas; Medical College of Alabama, Mobile, 1890; aged 54; died, August 19, of angina pectoris.

Frederick Fraley Price, Carbondale, Pa.; Jefferson Medical College of Philadelphia, 1891; aged 67; died suddenly, August 5, of heart disease.

Robert Coyle, Philadelphia; Jefferson Medical College of Philadelphia, 1885; aged 70; died suddenly, September 9, of angina pectoris.

William Blair Clark, New Orleans; Southern Medical College, Atlanta, 1898; aged 50; died, in May, of cerebral hemorrhage.

Henry Bently Webster, Kentville, N. S., Canada; Medical Department of Columbia College, New York, 1872; died, June 5.

Harry L. Sickel ⊕ Woodbury, N. J.; Kentucky School of Medicine, Louisville, 1894; aged 62; died, in April.

Bureau of Investigation

BASY BREAD

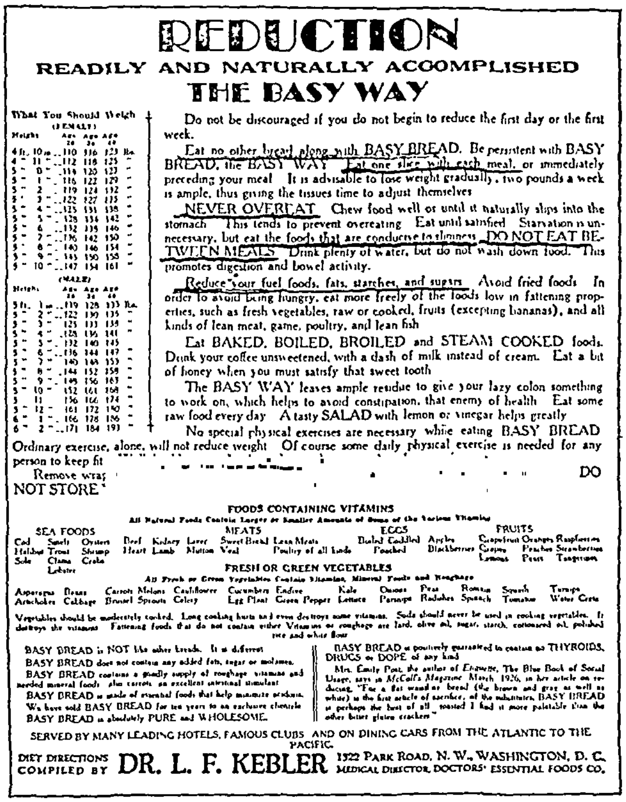
The Use of a Placebo in the Treatment of Obesity

More than twelve years ago, this department of The Journal contained a brief article on Basy Bread, which at that time was being sold under such claims as:

> "Three Slices a Day Will Drive the Fat Away."
>
> "Reduce Easily and Naturally. Eat Basy Bread and Grow Thin."
>
> "Basy Bread, the Health Bread, by its chemical action, destroys the fat already accumulated, and drives it out of the body."
>
> "It is unquestionably the safest, sanest, surest most natural and inexpensive method of reducing fat ever conceived."

At the time of the previous investigation, The Journal published the following analysis of Basy Bread, comparing it with the average graham bread:

	Basy Bread in 1918	Average Graham Bread
Moisture	37.11 per cent	34.80 per cent
Carbohydrates	47.72 per cent	53.40 per cent
Protein	11.98 per cent	8.93 per cent
Fat	1.09 per cent	2.03 per cent
Ash	2.06 per cent	1 59 per cent
Calories	1,166	1,075



REDUCTION

READILY AND NATURALLY ACCOMPLISHED

THE BASY WAY

What You Should Weigh

(FEMALE)

Height	Age 20	Age 30	Age 40	
4 ft. 10 in.	110	116	123	lbs.
4 " 11 "	112	118	125	"
5 " 0 "	114	120	127	"
5 " 1 "	116	122	129	"
5 " 2 "	119	124	132	"
5 " 3 "	122	127	135	"
5 " 4 "	125	131	138	"
5 " 5 "	128	134	142	"
5 " 6 "	132	138	146	"
5 " 7 "	136	142	150	"
5 " 8 "	140	146	154	"
5 " 9 "	143	150	158	"
5 " 10 "	147	154	161	"

(MALE)

Height	Age 20	Age 30	Age 40	
5 ft. 1 in.	119	128	133	lbs.
5 " 2 "	122	130	135	"
5 " 3 "	125	133	139	"
5 " 4 "	128	136	141	"
5 " 5 "	132	140	145	
5 " 6 "	136	144	147	"
5 " 7 "	140	148	153	"
5 " 8 "	144	152	159	"
5 " 9 "	148	156	163	"
5 " 10 "	152	161	168	"
5 11	156	166	174	"
5 " 12 "	161	172	180	"
6 " 1 "	166	178	186	"
6 " 2 "	171	184	193	"

Do not be discouraged if you do not begin to reduce the first day or the first week.

Eat no other bread along with BASY BREAD. Be persistent with BASY BREAD, the BASY WAY. Eat one slice with each meal, or immediately preceding your meal. It is advisable to lose weight gradually, two pounds a week is ample, thus giving the tissues time to adjust themselves.

NEVER OVEREAT. Chew food well or until it naturally slips into the stomach. This tends to prevent overeating. Eat until satisfied. Starvation is unnecessary, but eat the foods that are conducive to slimness. DO NOT EAT BETWEEN MEALS. Drink plenty of water, but do not wash down food. This promotes digestion and bowel activity.

Reduce your fuel foods, fats, starches, and sugars. Avoid fried foods. In order to avoid being hungry, eat more freely of the foods low in fattening properties, such as fresh vegetables, raw or cooked, fruits (excepting bananas), and all kinds of lean meat, game, poultry, and lean fish.

Eat BAKED, BOILED, BROILED and STEAM COOKED foods. Drink your coffee unsweetened, with a dash of milk instead of cream. Eat a bit of honey when you must satisfy that sweet tooth.

The BASY WAY leaves ample residue to give your lazy colon something to work on, which helps to avoid constipation, that enemy of health. Eat some raw food every day. A tasty SALAD with lemon or vinegar helps greatly.

No special physical exercises are necessary while eating BASY BREAD. Ordinary exercise, alone, will not reduce weight. Of course some daily physical exercise is needed for any person to keep fit

Remove wra [illegible] DO NOT STORE [illegible]

FOODS CONTAINING VITAMINS

All Natural Foods Contain Larger or Smaller Amounts of Some of the Various Vitamins

SEA FOODS
Cod Smelt Oysters
Halibut Trout Shrimp
Sole Clams Crabs
Lobster

MEATS
Beef Kidney Liver Sweet Bread Lean Meats
Heart Lamb Mutton Veal Poultry of all kinds

EGGS
Boiled Coddled
Poached

FRUITS
Apples Grapefruit Oranges Raspberries
Blackberries Grapes Peaches Strawberries
Lemons Pears Tangerines

FRESH OR GREEN VEGETABLES

All Fresh or Green Vegetables Contain Vitamins, Mineral Foods and Roughage

Asparagus Beans Carrots Melons Cauliflower Cucumbers Endive Kale Onions Peas Romaine Squash Turnips
Artichokes Cabbage Brussel Sprouts Celery Egg Plant Green Pepper Lettuce Parsnips Radishes Spinach Tomatoes Water Cress

Vegetables should be moderately cooked. Long cooking hurts and even destroys some vitamins. Soda should never be used in cooking vegetables. It destroys the vitamins. Fattening foods that do not contain either Vitamins or roughage are lard, olive oil, sugar, starch, cottonseed oil, polished rice and white flour.

BASY BREAD is NOT like other breads. It is different.

BASY BREAD does not contain any added fats, sugar or molasses.

BASY BREAD contains a goodly supply of roughage, vitamins and needed mineral foods, also carrots, an excellent intestinal stimulant.

BASY BREAD is made of essential foods that help minimize acidosis.

We have sold BASY BREAD for ten years to an exclusive clientele.

BASY BREAD is absolutely PURE and WHOLESOME.

BASY BREAD is positively guaranteed to contain no THYROIDS, DRUGS or DOPE of any kind.

Mrs. Emily Post, the author of *Etiquette, The Blue Book of Social Usage*, says in *McCall's Magazine* March, 1926, in her article on reducing, "For a fat woman bread (the brown and gray as well as white) is the first article of sacrifice, of the substitutes, BASY BREAD is perhaps the best of all, toasted I find it more palatable than the other bitter gluten crackers."

SERVED BY MANY LEADING HOTELS, FAMOUS CLUBS AND ON DINING CARS FROM THE ATLANTIC TO THE PACIFIC.

DIET DIRECTIONS COMPILED BY DR. L. F. KEBLER 1322 PARK ROAD, N. W., WASHINGTON, D. C. MEDICAL DIRECTOR, DOCTORS' ESSENTIAL FOODS CO.

According to the manufacturers at that time, Basy Bread was made from coarse-ground, hard whole wheat, preserved and sweetened with ground figs and containing vinegar, salt and water.

The late Dr. Harvey W. Wiley in 1918 was connected with *Good Housekeeping* and acted as a censor for the advertising of food products for that magazine. He analyzed Basy Bread and summed up the case against this dietetic nostrum in the following words: "There is one way in which Basy Bread will reduce; that is, don't eat any of it, nor much of any other kind."

It was pointed out in the previous article that the joker in the Basy Bread exploitation lay in the fact that the person who was using Basy Bread was told that she (it was usually she) must greatly diminish the amount of bread, potatoes, oils, fats and sugars in the diet while using the "bread." Quite naturally, the obese could have reduced just as effectively had they followed the dietetic instructions that came with the Basy Bread and thrown the "bread" itself in the garbage can!

But, apparently, Basy Bread still flourishes for the Bureau of Investigation continues to get inquiries regarding it. Because of the continued interest in this preparation the American Institute of Baking was asked during the past year to analyze the Basy Bread then found on the market, so that this information could be passed on to the medical profession and the public. Dr. C. B. Morison, Director of Laboratories of the American Institute of Baking, kindly consented to have this work done, and in due time submitted the following figures:

Moisture	35.24 per cent
Protein (N × 6.25)	11.04 per cent
Nitrogen free extract	47.64 per cent
Crude fiber	1.21 per cent
Fat	2.54 per cent
Ash	2.33 per cent
Calories per pound	1,168.2

Again we see that the energy value of Basy Bread is more than equal to that of average graham bread and is almost equal to that of white bread, which averages 1,200 calories per pound for bread of usual moisture content and composition. *Essentially the same directions come for the use of Basy Bread today* as were sent out twelve years ago. Some of these directions are:

> "Eat no other bread."
>
> "Do not eat between meals."
>
> "Eat one slice with each meal."
>
> "Walk briskly several miles a day."
>
> "Do not partake of heavy cream soups."
>
> "Eat the foods that you know will be inducive to slimness."

According to a letter written by the "Medical Director" of the "Doctors' Essential Foods Company, Inc." that puts out Basy Bread, this product is made of "whole wheat flour, soy bean flour, carrots, fruits and yeast." From the same source we get the admission that "Basy Bread contains about the same number of calories as white bread."

Obviously Dr. Wiley's statement of many years ago is just as applicable to Basy Bread today as it was when it was written. It is patent that any woman who will cut down her bread intake to a single slice three times a day, who will reduce her intake of fats, starches and sugars, who will substitute a "dash of milk instead of cream," who will "walk briskly several miles a day"—will, in all human probability, reduce her weight, even though she never hears of Basy Bread and continues to use the much more palatable ordinary white bread in her diet. For people who are so constituted that they cannot be made to follow a diet without a certain amount of hocus-pocus and the expenditure of money, Basy Bread may serve a useful purpose. For all practical purposes, however, the obese who reduce by the Basy Bread method are being "kidded by experts."

MORE MISBRANDED NOSTRUMS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

Red Caps.—The Campbell Laboratories, St. Joseph, Mo., shipped in January, 1929, to Kansas a quantity of Red Caps that were declared misbranded. The product consisted of capsules containing antipyrine, asafetida, podophyllin, red pepper, starch and a trace of alkaloids. The claim that it was a remedy for influenza was declared false and fraudulent. The Campbell Laboratories in March, 1929, having appeared as claimants, judgment of condemnation and forfeiture was entered and the court ordered that the product be released to the company on payment of costs and the execution of a bond conditioned in part that the preparation be relabeled.—[*Notice of Judgment 16576; issued February, 1930.*]

Gasidal.—The Gasidal Company, Kansas City, Mo., shipped to Atchison, Kan., in December, 1928, a quantity of Gasidal that was declared misbranded. Analysis showed the product to consist essentially of baking soda, magnesium carbonate, bismuth subnitrate, and starch, flavored with peppermint. The claims to the effect that it was a positive relief for all forms of gastro-intestinal disturbances and specifically useful in duodenal ulcers, gallbladder disease, gastric neurosis, pelvic infections in women, etc., were declared false and fraudulent. In April, 1929, D. J. Sullivan of Kansas City, Mo., appeared as claimant and judgment of condemnation was entered, and the court ordered that the product be released to Sullivan on payment of costs and the execution of a bond conditioned in part that the preparation be relabeled.—[*Notice of Judgment 16587; issued February, 1930.*]

Stout's Cold Tablets.—D. C. Leo and Company of Des Moines, Iowa, shipped into West Virginia in January, 1929, a quantity of Stout's Cold Tablets that were declared misbranded. The chemists found the tablets to contain acetanilide, alkaloids of nux vomica and extracts of plant drugs, including a laxative drug. The claim that it was a remedy for influenza was declared false and fraudulent. In May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16594; issued February, 1930.*]

Flu-Caps.—Murray C. Kalis and Company, St. Joseph, Mo., shipped into Iowa in January, 1929, a quantity of Kalis' Laxative Flu-Caps which were declared misbranded. Analysis showed the capsules to contain red pepper, ginger, aloin, acetanilide, asafetida, camphor, epsom salt and a laxative plant drug. The claims that this preparation was a remedy for malaria, chills, influenza and various other conditions, were declared false and fraudulent. In April, 1929, Murray C. Kalis and Company appeared as claimants, and judgment of condemnation and forfeiture was entered and the court ordered that the product be released to the claimant on payment of costs and the execution of a bond conditioned in part that it be relabeled truthfully.—[*Notice of Judgment 16592; issued February, 1930.*]

KALIS'
LAXATIVE
"FLU=CAPS"
REGISTERED U S PATENT OFFICE
FOR COLDS, GRIP AND INFLUENZA
EACH CAPSULE CONTAINS TWO GRAINS ACETANILIDE
Prepared by MURRAY C. KALIS & Co., St. Joseph, Mo.
50¢

Kidder's Cold and Grippe Tablets.—Samuel Kidder and Company of Boston shipped in December, 1928, into New Jersey a quantity of Kidder's Cold and Grippe Tablets that were declared misbranded. The chemists reported that the tablets contained phenacetine, salol, caffeine and citric acid. The product was declared misbranded, first, because the label failed to bear a statement of the presence and quantity of phenacetine present; it was further declared misbranded because the claim that it was a remedy for influenza was declared false and fraudulent. In July, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16593; issued February, 1930.*]

Klein's Cold and Grippe Capsules.—Brewer and Company, Worcester, Mass., shipped in December, 1928, to New Jersey a quantity of Klein's Cold and Grippe Capsules that were declared misbranded. Analysis showed the capsules to contain acetanilide, cinchona alkaloids, phenolphthalein, aloin, sugar and starch. The claim that it was a remedy for influenza was declared false and fraudulent and in July, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16600; issued February, 1930.*]

Correspondence

GYNERGEN

To the Editor:—We have seen the letter of Mr. Walter R. Fletcher of the British Medical Research Council concerning Gynergen (THE JOURNAL, September 6, p. 746).

The statement objected to is found in a booklet issued by us early in 1928. It was based on evidence then in our files in New York which evidence, indeed, remained the only one we had up to the time we saw the letter of the British Research Council: namely, passages in the *Pharmaceutical Journal* of February 20, 1926: "It will be assumed that the therapeutically active substance is the specific alkaloid, ergotamine. . . . As standard, a sample of ergotamine tartrate is available prepared by the Sandoz Chemical Works. . . . After consultation with the Director of the Department of Biological Standards, Medical Research Council, it has been decided to approve as good samples of ergot, those containing not less than 1 mg. per gram of the specific alkaloid." Again, in the *Pharmaceutical Journal* of March 13, 1926, the text of the label of tested products is prescribed to be worded as follows: ". . . Cc. of this preparation contains 1 mg. ergotamine, as determined by a biological test carried out by the Pharmaceutical Society of Great Britain."

Again—and this is most important—in the *Pharmaceutical Journal* of April 9, 1927 (p. 384), Burn and Ellis themselves make the following statement: "By the courtesy of the Sandoz Chemical Works, samples of ergotamine tartrate were placed at our disposal at the beginning of our work and *throughout the main portion of it we have used ergotamine as a standard with which to compare extracts of ergot.* We have also received a sample of ergotoxine phosphate through the kindness of Mr. F. H. Carr, C.B.E., of the British Drug Houses, *and having confirmed its pharmacological identity with ergotamine* we have adopted it as the standard for general use." (Italics ours.)

The reasons why, after the work had been done with ergotamine, the standard was changed from easily soluble and easily kept ergotamine tartrate to ergotoxine phosphate, difficult to purify, less stable, less soluble and which requires special precautions for its conservation, are not pertinent here. The facts remain that ergotamine tartrate *was* adopted as a standard and that an important member of the British Research Council *was* consulted.

The booklet on Gynergen referred to has been out of print for a rather long time. We shall continue to adhere strictly to the rules of the Council on Pharmacy and Chemistry of the American Medical Association as regards the advertising of Gynergen.

SANDOZ CHEMICAL WORKS, INC.,
E. W. MARTI, Manager.

BLOOD TESTS FOR PATERNITY

To the Editor:—Since 1910, when von Dungern and Hirschfeld proved that the inheritance of the group-specific substances proceeded according to Mendel's law, the medicolegal aspects of this phenomenon have been recognized and utilized. *In its* simplest form, they showed that the agglutinogen A or B does not appear in the blood of the infant unless it is present in at least one of the parents. Their contention has since been corroborated by Ottenberg and others in large series of cases.

In a study, "Iso-agglutinins in the New-Born" (*Am. J. Dis. Child.* **36**:54 [July] 1928), I presented the results of an investigation which added to the available evidence that the iso-agglutinins found in the cord blood and in the circulation of the new-born infant are in large part derived from the mother as a consequence probably of placental transmission. The initial iso-agglutinins may disappear but in the course of infancy agglutinogens and agglutinins of the infant's own manufacture make their appearance and the blood groups are definitely established. The complete disappearance or diminution in titer of the transmitted iso-agglutinins within ten days after birth was observed in twenty-seven of forty-one cases.

The significance of this train of events was illustrated in two cases encountered in this study. In the two infants the cord serum showed a and b iso-agglutinins and the cells no receptors. The blood groups were like those of the mother, group 0. Reexamination of the blood of the infants in ten and seven days, respectively, failed to reveal any trace of either iso-agglutinin. At ten weeks in one case the A receptor and b iso-agglutinin were present together, and in the other at three months the B receptor and a iso-agglutinin were in evidence. In other words, at birth and for a short time thereafter the infants' blood belonged to group 0 only to be replaced later by their own groups A and B. These are instances in which the iso-agglutinins that disappeared did not properly belong to the new-born infants but had been acquired by placental transmission from the mother. Since both iso-agglutinins were originally present in the blood of the infants and the receptors A and B were absent, they belonged to group 0 and in courts of law would be so regarded. With the loss of one or both iso-agglutinins and the development of the agglutinogens, the problem of parentage would again be thrown open for discussion. Caution must be exercised not alone in the interpretation of group 0 cases but also those in which both mother and offspring fall in group A or B. It is conceivable in the light of this study that the new-born may lose the b or a iso-agglutinin of these groups and with the later acquisition of the remaining cell receptor fulfil the requirements of group AB.

The conclusion reached in this study and one that I would emphasize again is that it would be wise from the medicolegal standpoint to defer these tests for an arbitrary period of at least two weeks following birth.

Dr. Wiener's suggestion that the blood be examined for the M and N agglutinogens of Landsteiner and Levine is a valuable one, particularly when the inheritance of the factors A and B is inconclusive.

Carl H. Smith, M.D., New York.

Department of Pediatrics, Cornell University
Medical College and New York Nursery
and Child's Hospital.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

POSITIVE WASSERMANN REACTION IN PREGNANCY

To the Editor:—Is one justified in giving antisyphilitic treatment to a woman who was found with a 4+ Wassermann reaction while in hospital for childbirth? She has no history or other signs of syphilis. Three Wassermann reactions have been positive, and a Kahn test by the state laboratory is positive. She has a husband whose blood is normal. She and two children are healthy. A. L. Nickerson, M.D., Kankakee, Ill.

Answer.—There is no unity of opinion concerning the significance of a positive Wassermann reaction during pregnancy. When other signs and symptoms of syphilis are present there is, of course, no room for doubt. However, when a positive Wassermann or Kahn test is found in a pregnant woman who has no history or physical signs of syphilis, a disagreement arises. This is especially true when, as in the case cited, the patient's husband and children are apparently healthy. Some syphilologists and obstetricians believe that a positive blood reaction indicates syphilis regardless of whether or not the patient is pregnant. Other authorities maintain that occasionally in pregnancy a woman without syphilis may have a positive Wassermann reaction. De Lee (Principles and Practise of Obstetrics, ed. 5, p. 529) says that more than thirteen deaths of gravidas from arsphenamine have been recorded and that therefore if a positive Wassermann reaction is the only sign of syphilis, the husband's being negative and there being no clinical history of the disease, arsphenamine may be omitted until after delivery but milder antisyphilitic treatment instituted.

If the patient cited has been delivered, specimens of her blood should be sent to two different laboratories for a repetition of the Wassermann and Kahn tests. It might also be advisable to repeat the test on the husband. If the patient has not yet been delivered, it is preferable to wait until the baby is born before repeating the tests. The Wassermann reaction in the new-born baby during the first few weeks of life is unreliable, but a roentgenogram of the long bones may yield useful information. If repeated tests of the patient's blood are positive, antisyphilitic treatment should be given.

DERMATITIS AFTER NEOARSPHENAMINE

To the Editor:—In a patient with early secondary syphilis, developing an exfoliative dermatitis following the fourth 0.9 Gm. dose of neoarsphenamine with three other graduated doses of neoarsphenamine previously in a period of four weeks' intensive treatment: 1. What regimen would you recommend to combat the syphilitic infection from this point on (six weeks since onset)? The patient has still a moderate exfoliation, that is, six weeks from the onset now. Sodium thiosulphate was used successfully to combat the acute toxicity. 2. Would you advise mercury or bismuth when exfoliation subsides? 3. If not, how soon could active antisyphilitic treatment be instituted? Would it be advisable to start on 0.3 Gm. of neoarsphenamine, graduating to 0.6 Gm. as the highest dose, instead of 0.9 Gm. as the highest dose at weekly intervals when arsenic therapy is again started? 4. Would you advise the use of small doses of potassium iodide during the present convalescent stage? Please omit name. M.D., Chicago.

Answer.—1 and 2. Bismuth therapy would be preferable. After two or three weeks, in addition to administration of bismuth compounds, neoarsphenamine should be given in doses of 0.3 Gm., which may be increased to 0.45 Gm. later on. Should signs of exfoliative dermatitis occur again after any applications of neoarsphenamine, it should be discontinued indefinitely, and courses of a bismuth salt be given alternately with those of mercury.

3 and 4. Yes.

USE OF INTRASPINAL MEDICATIONS

To the Editor:—Why are injections of serum in the spinal fluid considered by many of advantage over the intravenous method? How does the absorption of a liquid occur when injected in the cerebrospinal fluid? In the last epidemic of infantile paralysis the intravenous treatment appeared to have given better results than the treatment made by injecting the convalescent serum into the spinal liquid. Why? Please omit name.

M.D., St. Paul.

Answer.—It is because elimination into the cerebrospinal fluid is slow that, in cerebrospinal meningitis, subarachnoid injection is required and eminently successful, because the serum is antibacterial in action and must come into intimate contact with the organisms to display efficiency. Absorption occurs from the cerebrospinal canal with remarkable rapidity; and, according to one theory, chiefly by the choroid plexus. If the theory is correct—and it probably is—that the poliomyelitis virus is primarily distributed through the blood, the greater efficiency of the intravenous injection of the antibodies is readily comprehended; and, if administered before the stage of meningeal invasion, intraspinal injection would not be required or desirable, because, for some unknown reasons, the latter nearly always produces a considerable aggravation of symptoms. In the stage of established meningeal involvement, the sparing intraspinal administration of 10 or at most 15 cc. of serum given at once and not repeated, together with the liberal (100 cc.) and repeated (every ten to twelve hours) intravenous administration of convalescent serum will probably give the best results.

THERAPEUTICS OF IODATE

To the Editor:—Can you furnish me with any information regarding iodate in the treatment of chronic arthritis? Kindly include physiologic effects, clinical indications, and where it may be obtained.

L. R. Belmont, M.D., Camillus, N. Y.

Answer.—Iodate is changed in the presence of reducing substances to iodide and possibly also to some organic iodine compounds. The systemic action of iodate is similar to that of iodine and iodides. In toxic doses, iodate produces gastro-enteritis, collapse and coma. As iodate is hemolytic; it is toxic on intravenous injection; it has not found a place in medicine. Sodium iodate and potassium iodate are prepared by a number of manufacturers of chemicals, such as Mallinckrodt, Merck and J. T. Baker, and marketed by all dealers in chemical reagents.

ENLARGEMENT OF BURSA AT ANKLE

To the Editor:—I have a patient who has considerable enlargement of the bursae of the ankles. The condition is apparently the result of frequent sprains and the wearing of improperly fitted shoes, especially those too short. The bursae have enlarged to such an extent that they feel like bags of water under the skin and cause considerable deformity. Will you please outline form of treatment which will correct the condi? tion? Kindly omit name. M.D., West Virginia.

Answer.—If this patient has been examined carefully for foci of infection and they have either been undiscovered or removed and the condition of enlargement of the bursae persists, the treatment resolves itself into nonoperative and operative. The nonoperative consists of the continuous wearing of a compression bandage during weight bearing, or aspiration and injection of a mixture of camphor and phenol. The operation consists of complete removal of the synovial sac.

ABSORPTION OF PHENOL

To the Editor:—I would like to have information from your department relative to phenol absorption. My former preceptor, Dr. M. P. Ravenel, taught me that an injection of a drachm of phenol was less liable to poison than a drachm of phenol in several ounces of water, claiming that weak solutions of phenol absorbed while strong solutions caused an escharotic membrane through which absorption took place very slowly. Several books published on the treatment of hemorrhoids by the injection of phenol give varying strengths for injections. The strengths run from 5 to 20 per cent in solutions of water, glycerin or oil. In all these mentioned, however, the dosage recommended is from 5 to 10 drops. A recent publication, published by F. A. Davis Company, 1930, written by Lawrence Goldbacher, on page 135 lists 19 and 20 cc. in one injection of *a 5 per cent phenol solution in oil. In the treatment for pruritus ani* the same author in the same publication injects 10 cc. of the same strength phenol solution one-half inch external to the anus through the most intense point of itching at a depth of three-fourths inch. I should like to know your opinion regarding toxicity and the effect of this solution on live muscle tissue. Please omit name. M.D., Wisconsin.

Answer.—There is no doubt some truth in Dr. Ravenel's assertion, especially if the statement is changed to read that in caustic strength it is absorbed more slowly rather than very slowly, for one of the characteristic features of phenol poisoning, no matter how it is administered, is the rapid onset of unconsciousness. The dosage employed for injections for hemorrhoids and pruritus ani is safe, as a fatal quantity would probably not be reached until a dose of 8 Gm. of phenol is exceeded. The effect of these injections is sclerosing rather than caustic. Indeed, the increasing popularity and safety of this procedure lies in the fact that quick destruction by caustic action has been abandoned in favor of slow destruction by exciting connective tissue overgrowth.

DOUBLE-DISK AND VALVE-TUBE RECTIFICATION IN X-RAY APPARATUS

To the Editor:—Kindly state the essential difference between double-disk and valve-tube rectification in x-ray apparatus and the prevalence of the use of each at present and the apparent trend. Omit name. M.D., Ohio.

Answer.—The essential difference between disk, either double or single, and valve-tube rectification in x-ray apparatus is that one is mechanical, the disks being rotated by a synchronous motor, and the other is electronic, the rectification being accomplished by one or more vacuum tubes which permit the flow of current in only one direction. The mechanical rectification, at high voltage, permits no current to pass through the tube during certain periods of rectification. With the valve-tube type there is always some current passing which may be at approximately the voltage at the terminals of the high voltage transformer or some fraction of this quantity. In no commercial machine is the current continuous at the maximum voltage output. The trend of construction in Europe is toward the valve-tube rectification apparatus. In this country one firm is pushing it strongly. Most other manufacturers are adhering to the disk type of rectification. It is generally acknowledged that the engineering problems connected with the valve-tube apparatus have not yet been completely solved. The advantage lies chiefly in the fact that the machines are silent. The valve-tube type generates slightly more x-rays than the mechanical at the same voltage and amperes.

The practical answer to the subscriber's problem is that the institution should purchase a type of machine which offers the best conditions for repair service. Any x-ray machine at the present time will deliver vastly more current than an x-ray tube will stand, and it makes little difference what the wave form is. The essential is quick repair in case of a breakdown. Therefore the form that offers the best and longest guarantee is the one that should be purchased.

PREGNANCY AT VARIOUS AGES

To the Editor:—What information or statistics have you on the occurrence of pregnancy in girls getting married at the age of 35, compared to those getting married younger, say at 25. Is it a fact that maiden ladies go through the menopause at an earlier age than married women? If so, what is the approximate age? Kindly omit name. M.D., Milwaukee.

Answer.—The age of greatest fertility in women is between 20 and 30 years, and of this period the most favorable years are between 20 and 24. Duncan's studies on this subject (Fecundity, Fertility and Sterility, 1871) led him to conclude that "about 7 per cent of all marriages are without offspring; that those married at ages from 20 to 24 inclusive are the most fertile; and that after that age, sterility gradually increases according to the greater age at the time of marriage." Nearly all authorities agree with Duncan's statement. Hence early marriages are highly desirable from the standpoint of fertility.

According to Sanes (Statistical Study of Age of Menopause, Tr. Sect. Obst., Gynec. & Abd. Surg., A. M. A., 1918) the menopause occurs earlier in unmarried women than in those who have had an active sexual life, especially those who have given birth to a number of children. The approximate age is difficult to state because the climacterium depends on many factors. The most important factors other than maternity are climate, race, heredity, illness, social conditions, obesity and age of puberty. Contrary to the view generally held by the public, the earlier the menstrual function begins, the longer it continues. In temperate climates about 50 per cent of all women have their menopause between 45 and 50 years of age, 25 per cent between 40 and 45 years, 12.5 per cent between 35 and 40 years, and the remainder between 50 and 55 years.

TREATMENT OF TUBERCULOUS GLANDS

To the Editor:—Would you kindly inform me as to the consensus of opinion of the medical profession for the proper treatment of tuberculous glands. Is it extirpation or should dependence be placed on such measures as tuberculin, quartz light therapy, sunlight, rest and general hygiene? Please omit name. M.D., China.

Answer.—Enlarged glands are usually the result of infection elsewhere; therefore, the focus should be sought and eliminated if possible. When the glands have already broken down, the obvious treatment is incision. As so many swollen glands are due to tuberculosis, it is advisable to examine the patient carefully to determine the presence or absence of this disease. According to Neumann, in a recent publication, supraclavicular glands, diminishing in size from above downward, indicate a lymphatic infection arising in the mouth or pharynx. On the contrary, glands diminishing in size from below upward indicate a lymphogenous propagation from an apical tuberculous pleurisy; it will be seen that, in case of such infection, extirpation of a few cervical glands cannot be of much avail when the chain extends down into the chest. In some cases of tuberculous glands good results have been obtained from the application of a Pirquet vaccination above (to) the glands, in the region drained by the glands. Otherwise tuberculin has not been of much good. General hygienic measures are, of course, to be recommended.

PARONYCHIA

To the Editor:—I have developed a peculiar condition of the finger nails (three on one hand and two on the other) which I am unable to diagnose. A perfectly dry area apparently of the epidermis appears at the side or the base of nail and in a few days scales off. The denuded area becomes tender to touch; there is no pain, itching or moisture. The nail does not seem to be involved. What is it and what shall I do for it? After the first or original scale there is a fine thin scaling. The condition would seem due to a fungus. F. E. R. Burgess, M.D., Bethany, Mo.

Answer.—The paronychia here described could be traumatic, mycotic or due to some other parasitic agent. A 3 per cent salicylic acid ointment probably would effect its removal.

USE OF GOLD SODIUM THIOSULPHATE

To the Editor:—I should like to make inquiry as to the efficiency of gold sodium thiosulphate in clearing up brown spots on the skin, produced evidently by loss of pigmentation in one portion and accumulation in other portions of the skin. It has been brought to my attention that hypodermic injections of this preparation have brought about wonderful results in many patients. William C. Davis, M.D., Columbus, Ohio.

Answer.—The most that can be said about this method of treatment is that it is in the experimental stage, that it is not uniformly successful, and that it is as yet impossible to state definitely in which cases it will succeed and in which it will not. Lindsay (Treatment of Leucoderma with Gold Sodium Thiosulphate, *Arch. Dermat. & Syph.* **20**:22 [July] 1929) believes that it counteracts excessive photosensitivity. The substance is injected intravenously in initial dose of from 30 to 60 mg., increased to 100 mg. The injections are generally given at intervals of one week.

CALCIUM CHLORIDE AND DERMATITIS

To the Editor:—Can you give me any information on calcium chloride as a causative agent of dermatitis? The coal company here is using a solution of calcium chloride to spray coal to keep down dust. Recently a number of the workers have developed a skin rash where the spray came in contact with the skin and where it had gone through the clothing. Please omit name.

M.D., West Virginia.

Answer.—The grade of calcium chloride used for mine or road dusting is far from pure. Even "Merck's" reagent type of calcium chloride accepts as probable impurities traces of such substances as free alkali, alkali salts, nitrates, sulphates and arsenic.

Crude calcium chloride contains much more extraneous materials of the same types, and, in addition, ammonium compounds. Calcium chloride is largely derived as a by-product in the manufacture of soda by the Solvay ammonia process.

Calcium chloride itself has about the same order of toxicity as table salt. Any dermatitis resulting from it is probably attributable to its impurities, of which alkalis or alkali salts are the most likely. Calcium chloride itself, however, in the presence of moisture, yields an acid reaction.

RINGWORM OF NAILS

To the Editor:—Please advise as to cause and treatment of thickening and dying condition of finger and toe nails. A woman, aged 28, who has come under my care for treatment, has been given the antisyphilitic serums and never showed a positive Wassermann reaction. She has a small thyroid enlargement and has had fainting spells. The temperature is normal; pulse, 104; reflexes, normal. I have looked up authors, but could not find this described.

M.D., Oklahoma.

Answer.—This condition may be nutritional or infectious. Ringworm of the nails produces a condition that suggests a dying nail. A scraping properly made will reveal the presence or absence of fungi. If no fungi are found, nutritional disturbances must be considered and in all probability arsenic would be of service here. This would have to be watched carefully and be supervised by a physician. If the trouble is mycotic in nature, the treatment would have to be directed for that disorder.

POSSIBLE MYCOTIC DERMATITIS

To the Editor:—I saw today a man in middle age, a banker, in a good state of health, who presented on his hands and forearms some half dozen groups of round, pin-head size, black spots on or in the skin, which looked precisely as would fine drops of strong silver nitrate after being exposed to light. There was absence of local reaction and subjective symptoms, and the spots would not scrape off. He informs me that his wife and son are similarly affected on the arms, neck and face. The number of spots in a group varies from one to fifteen and the multiple groups have the spots closely aggregated. All three persons have been swimming in the same pool during the recent weeks. The duration of the condition in each case is about a week. Can you suggest the etiology? Please omit name.

M.D., Iowa.

Answer.—Much depends on whether these lesions are in or on the skin. If it means that there are scaly spots, it might be a fungous infection. This could be determined by microscopic examination. If the black spots consist of pigment within the skin, then an entirely different condition would have to be considered. In view of the fact that other people have the same disorder, it is most likely that it is a mycotic dermatitis.

EFFECTS OF X-RAYS ON HEART AND BLOOD

To the Editor:—Kindly advise whether or not x-ray work as a technician has any detrimental effect on the heart? I am perplexed at the present time because of the literature.

J. S. Collins, M.D., Wabasha, Minn.

Answer.—An x-ray technician in normal health and therefore with a normal heart has nothing to fear in the way of any cardiac harm from x-rays in the discharge of his duties when performed under modern approved technical procedure. This refers to protective measures that must always be taken in the presence of x-rays, known to all well informed x-ray operators.

Certain individuals have been found to show blood changes which seem to have been the result of x-ray absorption. A careful worker will have his blood examined periodically and if changes are disclosed thereby will advisedly change his occupation to one less hazardous to him.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

American Board for Ophthalmic Examinations: Chicago, Oct. 27, 1930. Sec., Dr. William H. Wilder, 122 So. Michigan Blvd., Chicago.

Arkansas: Little Rock, Nov. 3, 1930. Basic Science. Sec., Mr. Louis E. Gebauer, Little Rock, Ark. Eclectic Board, Little Rock, Nov. 11 and 12, 1930. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith, Ark. Regular, Little Rock, Nov. 11-12, 1930. Sec., Dr. Sam J. Albright, Searcy, Ark. Homeopathic, Eureka Springs, Nov. 11, 1930. Sec., Dr. Allison A. Pringle, Eureka Springs, Ark.

California: Sacramento, Oct. 20-23, 1930. Sec. Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

Connecticut: Regular, Hartford, Nov. 11 and 12, 1930. Sec., Dr. T. P. Murdock, 147 W. Main St., Meriden, Conn. Homeopathic, New Haven, Nov. 10, 1930. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

Florida: Jacksonville, Nov. 10-11, 1930. Sec., Dr. W. M. Rowlett, P. O. Box 603, Tampa, Fla.

Maine: Portland, Nov. 11-12, 1930. Sec., Dr. Adam P. Leighton, 192 State St., Portland, Me.

Massachusetts: Boston, Nov. 12-14, 1930. Sec., Dr. Frank M. Vaughan, 144 State House, Boston, Mass.

Minnesota: Minneapolis, Oct. 21-23, 1930.. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul, Minn.

Nebraska: Lincoln, Nov. 20-22, 1930. Sec., Mr. Ernest M. Pollard, Lincoln, Neb.

Nevada: Carson City, Nov. 3-5, 1930. Sec., Dr. Edward E. Hamer, Carson City, Nev.

South Carolina: Columbia, Nov. 11, 1930. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia, S. C.

Texas: Waco, Nov. 18-20, 1930. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas, Texas.

West Virginia: Morgantown, Nov. 20, 1930. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

Oklahoma June Examination

Dr. J. M. Byrum, secretary of the Board of Medical Examiners of Oklahoma, reports the written examination held at Oklahoma City, June 10 and 11, 1930. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. Fifty candidates were examined and passed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine	(1930)	84, 89
Northwestern University Medical	(1928)	88
State University of Iowa College c ''		88
University of Oklahoma School of ''		, 78, 80, 81, 81 82 83, 83 83, 84, 84, 84, 8 , , 85, 85, 85, 85, 85, 85, 85, 85, 85, 86, 86, 86, 86, 86, 86, 86, 87, 87, 87, 87, 87, 87, 87, 87, 88, 89, 90, 90

Dr. Byrum also reports 13 candidates licensed through reciprocity with other states, 1 by endorsement of National Board of Medical Examiners credentials; 2 reregistration certificates were issued, according to the act of 1908. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School	(1929)	Louisiana
Rush Medical College	(1929)	Illinois
University of Illinois College of Medicine	(1927)	New York
State University of Iowa College of Medicine	(1927)	Iowa
University of Louisville School of Medicine	(1913)	Mississippi
	(1898) (1925) (1929)	Kentucky
Columbia Univ. College of Physicians and Surgeons	(1923)	Texas
University and Bellevue Hospital College of Medicine	(1922)	Mississippi
University of Tennessee College of Medicine	(1929)	Tennessee
Medical College of Virginia	(1917)	Virginia
McGill University Faculty of Medicine	(1924)	Ohio

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Washington University School of Medicine	(1926)	N. B. M. Ex.

College REREGISTRATION	Year Grad.	Credentials
State University of Iowa College of Medicine	(1890)	Reregis.
Central Medical College of St. Joseph	(1903)	Reregis.

Iowa Reciprocity Report

Mr. H. W. Grefe, director of examination and licensure of Iowa, reports 16 physicians licensed through reciprocity with other states from Jan. 1, to July 14, 1930. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University Medical School	(1924)	Ohio
Bennett Medical College	(1914)	Illinois
Northwestern University Medical School	(1929, 2)	Illinois
Rush Medical College	(1928) Texas, (1914)	Illinois
Indiana University School of Medicine	*(1925)*	Indiana

University of Louisville School of Medicine	(1928)	Kentucky
Tulane University of Louisiana School of Medicine	(1923)	Louisiana
Barnes Medical College	(1910)	Missouri
St. Louis University School of Medicine	(1929)	Missouri
Creighton University School of Medicine	(1928)	Ohio
University of Nebraska College of Medicine	(1920) (1925)	Nebraska
Jefferson Medical College	(1900)	Colorado
University of Tennessee College of Medicine	(1916)	Tennessee

Book Notices

SYMPOSIUM ON PHYSICAL EDUCATION AND HEALTH. Compiled and edited by Jay B. Nash, Professor of Physical Education and Health, New York University. Assisted by Emma R. Frazier and Marguerite Vollmer. Boards. Pp. 320, with illustrations. New York: New York University Press Book Store, 1930.

At the dedication of the new twelve story building of the school of education at New York University, in February, a three day conference was held on the problems of physical education and health. Twenty-eight of the addresses have been published in book form. The compiling and editing was done by J. B. Nash. This entire symposium emphasizes the part played by physical education in connection with the intellectual power which the individual develops. Its greatest contribution is in the building of skills which will express themselves as wants in leisure time activities. The central theme of the symposium, the oneness of mind and body, given by Dr. L. Vosburgh Lyons, lecturer on neuro-anatomy at New York University, recognizes the opposite categories of the mental and physical. The program at the school of education, coordinating as it does the sciences contributing to health, will fulfil the objectives outlined by the American Physical Education Association which are given in the book. Such a curriculum is needed. Physical education is now required by law in schools of thirty-six states, affecting 95 per cent of the pupils of the country. There is a want of effective organized health programs. One speaker at the conference laid the causes of this to poor coordination in instruction, the lack of comprehension by teachers of what constitutes the health program and, when given, the instruction not being presented in a manner vital to pupils. The symposium on physical education and health is valuable to students as a basis for analyzing the component parts of the profession in the light of its objectives. On page 155 is given a picture of optimal health, and on page 147 the three factors influencing it. Teachers can well follow the plan given to correlate physical education with other activities in their contributions to education. The book represents the latest attitude of education toward the relatively new profession of physical education and can be used as a practical guide.

THE ANTISCURVY VITAMIN IN APPLES. By Mary F. Bracewell, E. Hoyle and S. S. Zilva. Medical Research Council, Special Report Series, No. 146. Paper. Price, 9d net. Pp. 45, with 33 illustrations. London: His Majesty's Stationery Office, 1930.

This report describes an investigation of vitamin C in various varieties of apples and the effects of maturity, soil, age of tree, storage and temperature on the vitamin content. The results are reported of experiments for the detection of any possible correlation between the antiscorbutic potency and the physiologic condition of the plant, maturity of the fruit, soil, age, storage and effect of heat. The experiments are based on the assumption that the vitamin C content of fruit is determined by a number of physiologic factors the revealing of which may disclose information on the nature and identity of the vitamin. Previous investigations have shown that the apple is a poor source of vitamin C. The process of canning or desiccation largely inactivates the vitamin. Apples gradually lose their potency during storage. Apples immersed in 2 per cent salt solution for eighteen hours before processing, however, retain their natural potency. The generally accepted biologic procedure was used for determining the vitamin C potency. The flesh of the apple only and not the peel or core was fed to guinea-pigs. The independent factors—duration of test period, cause of death, first appearance of scorbutic symptoms, degree of scurvy at necropsy and growth — were considered. Six varieties of English apples tested showed considerable differences in antiscorbutic activity. One variety, Bramley Seedlings, was decidedly the most potent. This was true for samples from different localities and picked at different seasons. No direct relationship between potency, age of tree or type of soil was noted. Normally ripe apples and those picked fourteen days before normal ripeness were of like potency. Apples aged in cold storage, 1 C. in air, retain their vitamin C potency better than apples aged at 10 C. in an atmosphere of 10 per cent carbon dioxide, 11 per cent oxygen and 79 per cent nitrogen. Eleven varieties of imported apples showed Canadian apples to be almost as potent as the English dessert variety, and the Australian and New Zealand varieties somewhat less potent. Comparatively slight differences in activity were noted in apples from various places in the same country and maturing at two different seasons of the year. Bramley Seedlings heated in the skin before storage, after cold storage or after gas storage showed little destruction of the vitamin during the heating period. The apples were placed in a drying oven at 160 C. The temperature fell to 115 C., where it was maintained for fifty minutes. The temperature of the core rose to 25 C. after five minutes and to 95 C. at the end of the heating. The experiments did not reveal any functional relationship between the antiscorbutic principle and any other factor studied. The high vitamin C content of Bramley Seedlings attracts special attention. The experiments exclude such factors as age of tree, soil, and season as directly responsible. Other varieties grown under similar conditions were less potent. Whether this property is "racial" or whether it is associated with any other characteristics is yet to be established. It is of interest to the dietitian that Bramley Seedlings have high antiscorbutic potency whether freshly picked or stored and that it persists after heating.

IODIZED OILS AS AN AID TO THE DIAGNOSIS OF LESIONS OF THE SPINAL CORD AND A CONTRIBUTION TO THE KNOWLEDGE OF ADHESIVE CIRCUMSCRIBED MENINGITIS. By Martin Odin and Gösta Runström, in co-operation with Adolf Lindblom. Acta Radiologica, Supplementum VII. Paper. Price, Swed. cr. 15. Pp. 86, with 38 illustrations. Stockholm: P. A. Norstedt & Söner, 1929.

This is an interesting and valuable study of iodized oils used by neurologists. The authors first discuss the anatomy of the subarachnoid space in brief and show that it is divided into an anterior and a posterior compartment, so that in clinically tilting a patient to observe block or partial arrest of iodized oil one must do it with the patient both on his back and on his abdomen. They have experimented with various types of iodized oils in varying amounts and found that some of the oils are rather irritating, especially when given in large amounts. They have found not only that the usual oils are irritating but also that the technic of preparation is such that considerable acetic acid and chloroform is often still present in the oil, which causes marked irritation of the leptomeninx. They have devised a new method of preparation of the emulsion for which they used oil of sesame. This is clinically nonirritating to the meninges. Many cases are reported in detail and their roentgenographic results pictured in several good plates. It is interesting that they have seen several cases with sciatic symptoms which they suspected of being a lumbar arachnoiditis. They confirmed this with iodized oil and at operation were able to relieve the symptoms.

THE ART OF RAPID READING: A BOOK FOR PEOPLE WHO WANT TO READ FASTER AND MORE ACCURATELY. By Walter B. Pitkin, Professor in Journalism, Columbia University. Cloth. Price, $2.50. Pp. 233. New York: McGraw-Hill Book Company, Inc., 1929.

This is one of those books of the class of Arnold Bennett's "How to Live on Twenty-Four Hours a Day," a book that contains much advice that ought to be obvious but that most persons rarely have in concrete form in their minds. And there is a lot of wisdom in it. The author gives many good suggestions on reading and puts them in form that is striking. He is a professor of journalism and the book has a journalese flavor to it. Any one can get some good points on effective reading from the reading of this book, just as any one can get good points from many similar books on other subjects—about how to improve one's grammar, or his handwriting, or his memory, or his conversation, or his elocution, or his bridge. There is much banality in all of them but there is a lot of useful information. The author's main thesis is the point that ought to be perfectly obvious but that most people apparently neglect to realize; namely, the importance of selecting one's reading with care and of picking out the important part of that which one reads. In order to illustrate the subject, he devotes considerable space to the art of skimming in reading. That is a useful art if used judiciously but is one which the average reader is apt so to use as to make his reading superficial and fruitless. And somehow one gets up from the consideration of the art of how to skim in reading with a feeling that for most readers it would be more useful to emphasize the importance of selecting reading with care and then, except the reading which is purely for entertainment, reading carefully —quite the opposite of skimming. But one can spend an interesting evening or two skimming judiciously through this book.

Les thérapeutiques nouvelles: Exposé critique et synthétique applications. Par Gaston Lyon. Paper. Price, 26 francs. Pp. 389. Paris: Masson & Cie, 1930.

The author's aim is to present the newer therapeutics in a "critical and synthetic" manner. He admits that it would be presumptuous to attempt to "stabilize" a science which, like all other sciences undergoing the viscissitudes of progress, may make the truth of today the error of tomorrow. He nevertheless attempts to help the medical practitioner in the selection of suitable remedies for his practice. He endeavors to cover the progress not only in the medicinal but also in the nonmedicinal remedies, including psychotherapy and surgery, to discuss general technic of medication, and to review in chapters on various functional systems the application of these newer remedies to the various important diseases, all within the confines of 380 pages. The result, of course, is sketchy, rather superficial, nevertheless remarkable in its display of familiarity with the newer therapeutic procedures in so vast a domain. All must choose between being profound and narrow or broad and shallow. The author has chosen the latter method as best suited for his *purpose.*

A Textbook for Midwives. By John S. Fairbairn, M.A., B.M., B.Ch., Consulting Obstetric Physician, St. Thomas's Hospital and General Lying-In Hospital, York Road, S.E. Fifth edition. Cloth. Price, $8. Pp. 269, with 119 illustrations. New York: Oxford University Press, 1930.

This is a closely printed, copiously and well illustrated book on obstetrics, intended for English-speaking midwives but one that meets no need in this country. It is about half way between textbooks for nurses and the students' manual. Twenty-nine pages are devoted to the general subjects of anatomy, physiology and bacteriology which might have been left to appropriate textbooks, and thirty-eight are given to the reproductive organs. The description of the mechanism of labor, complicated still further by its presentation as occurring in the side position, is hardly understandable by one not fortified with a knowledge of physics and anatomy. The treatment of all the complications of obstetric practice as presented in the volume is sensible, and agreeable to the latest advances in the art; but one must regret that conditions still exist in which unlearned and unpracticed women are placed in situations where they have to attempt such dangerous operations. It casts a reflection on our civilization. Excellent chapters are given on surgical cleanliness, breech presentation, other pathologic labors, puerperal infection, the care and feeding of infants, venereal disease, and maternal and infant mortality in Britain, making a volume of useful information. If the British midwife knows all there is in this book and has the ability to practice its teachings (both of which postulates may meet a reasonable doubt), she ought to be a safe person in the confinement chamber.

La fisio-patologia del sonno. Per Prof. Dott. Alberto Salmon, docente in neuropatologia nella R. Università di Firenze. Paper. Price, 30 lire. Pp. 211, with illustrations. Bologna: Licinio Cappelli, 1930.

This is a restatement of Professor Salmon's thesis on the cause of sleep, published in French in 1910. The author's clinical observations during the intervening twenty years have only strengthened his conviction that sleep and wakefulness are regulated by the secretory activity of the hypophysis. The nutritive state of the nerve cells concerned in sleep depends on the antitoxic action of the secretion of the anterior lobe and is affected by the vasoconstrictor properties of secretion of the posterior lobe. A large portion of the book is devoted to a discussion of the disorders of sleep (hypersomnia, narcolepsy, dissomnia, hyposomnia, insomnia) and their treatment. Thus, twenty-two groups of pathologic conditions leading to hypersomnia are taken up in some detail. The book should prove of considerable value to the student of sleep and its disorders.

Les érythrémies de l'altitude: Leurs rapports avec la maladie de Vaquez. Etude physiologique et pathologique. Par le Dr. Carlos Monge, professeur de pathologie interne à l'Université de Lima. Préface du Professeur G. H. Roger, Doyen de la Faculté de médecine de Paris. Paper. Price, 22 francs. Pp. 134, with illustrations. Paris: Masson & Cie, 1929.

This work considers not only the erythremia of altitude but also the other physiologic responses. It discusses changes in basal metabolism, the shift in the acid-base equilibrium and the altered constituents of the urine. Studies of the oxygen saturation of the blood, of the elimination of the carbon dioxide and of the change in the carbon dioxide tension are included. The studies were made at various altitudes between 150 and 4,500 meters. While nothing particularly new is offered in this field, the subject has been thoroughly investigated and the results are set forth in detail. The various theories of acclimatization are discussed as well as the relationship between the erythremia of altitude and that of other causes. A fairly comprehensive bibliography is attached. A little more care might have been used in the proof reading, particularly in reference to proper names. It rather annoys the American reviewer to see Osler spelled Oster and Warthin spelled Warting.

An Introduction to Vertebrate Embryology. By H. L. Wieman, Professor of Zoology, University of Cincinnati. Cloth. Price, $4. Pp. 411, with 200 illustrations. New York: McGraw-Hill Book Company, Inc., 1930.

This is an authoritative textbook based on the author's presentation of the subject to premedical students. It has a number of new features; especially commendable are the treatment of cytology in general and the place of the germ cells in it, the discussions of experimental work with its biologic as well as its embryologic implications, and the admirable chapter on placentation. Emphasis is placed on the phases of the subject with which the student can come into personal touch in the laboratory, and the bulk of it accordingly deals with the chick and the pig embryo. The illustrations are for the most part new; they are clear and simple but true to the originals, with few diagrams. The incorrect stock textbook figures of human embryos have been supplanted; but a few more might have been added to convince the medical student, whose prejudices are worth considering nowadays, that he could see no more in human embryos than in the available comparative material of the early stages which he studies. The chapter on the brain reveals the need, as every similar treatment does, of a detailed, comprehensive and objective account of the development of some vertebrate brain, by a competent neurologist, which might serve as a guide for elementary presentations. Probably another Wilhelm His will have to arise before such an account is written.

History of the Orleans Parish Medical Society, 1878-1928. By A. E. Fossier, A.B., A.M., M.D. Cloth. Pp. 238, with illustrations. New Orleans: Albert E. Fossier, 1930.

Professional ethics seems to have been the bone of contention in the early attempts at organizing the Orleans Parish Medical Society. In 1873, reformers organized the Orleans Medical and Surgical Association, and a considerable number of members also belonged to the Orleans Parish Medical Society. The renaissance of scientific activities then centered the interest of physicians and to these men this history is dedicated: "To the Young Men of the Eighties, whose judgment, vision, devotion and acumen fused into a solid body the decadent medical Societies of this City." The history covers the period between 1878 and 1928. The Shreveport Medical Society is credited with the assembling of representatives from different parishes to organize the state society in conformity with the plans of the American Medical Association. In 1890 the new society absorbed the Orleans Medical and Surgical Association.

The History of the Orleans Parish Medical Society, compiled by Dr. A. E. Fossier, puts into permanent form the transactions, which are a replete repository of the astounding advances attending the rapid stride of recent hygienic progress. It is largely based on the journal of Dr. Charles Chassaignac, which is an historical sketch of the society from its beginning to the year 1902. Chassaignac is the oldest living ex-president.

New Orleans is said to have been the scientific laboratory in which was tested and performed the efficiency of some of the noteworthy discoveries in the annals of preventive medicine. Two chapters are devoted to public interest meetings at which symposiums were held to advance or support important hygienic measures in combating epidemics and pestilence. The present generation of physicians will here find how organized medicine in the past handled such momentous questions as hospital abuses of medical charity, chiropractor bills and political control of medical legislation. It forms a convenient book of records of physicians during the fifty year period in which medical science underwent so many revolutionary achievements. An interesting feature is the series of page groups of portraits of members and views of meeting places. The author discounts the verity of the laconic thought that "contemporaries appreciate the man rather than the merit, but posterity will regard the merit rather than the man." In the chapter on honoring distinguished members, full accounts are given of the ceremonies attending the honoring of Drs. C. C. Bass, Ernest S. Lewis and Rudolph Matas. The chronicle on minutes and transactions of the society occupies seventy pages of the book; a roster of members from 1878 to 1928, fourteen pages, and there is a complete index to portraits for ready reference. This public history is a realization of the dream which the author had to redeem from actual oblivion the recorded labors of distinguished predecessors.

Les hypotensions aiguës et subaiguës. Par M. A. Dumas, médecin des hôpitaux. Paper. Price, 30 francs. Pp. 162. Paris: Masson & Cie, 1929.

This small monograph consists largely of discussion and description of the clinical conditions associated with sudden or less abrupt lowering of blood pressure. Animal experimentation has not been developed in this field, if one judges by this work. No electrocardiographic tracings have been used. A few charts of daily blood pressure readings during infection are shown. The symptoms of syncope derived from the brain, eye, ear, blood and other viscera are discussed. Those arising from the heart and the associated observations are described. Various syndromes with acute hypotension as the central etiologic factors are pictured. Hypotension occurring in the course of other diseases is then discussed at length. One is impressed with the thoroughness of clinical study and the plausibility of theoretical argument, while the lack of exact physiologic measurement of the factors concerned is evident.

Mental Aspects of Stammering. By C. S. Bluemel, M.A., M.D., L.R.C.P., Clinical Instructor in Neurology of the University of Colorado School of Medicine. Cloth. Price, $2.50. Pp. 152, with 20 illustrations. Baltimore: Williams & Wilkins Company, 1930.

This work is intended for a simple introduction to practical teachers as well as for patients who stammer. It is in no sense intended as a scientific treatise on stammering. For the purpose, it seems adequate. It may well be used in special classes for this type of patient.

Sensation and the Sensory Pathway. By John S. B. Stopford, M.D., F.R.S., Professor of Anatomy, the University of Manchester. Cloth. Price, $3. Pp. 148, with 19 illustrations. New York: Longmans, Green & Company, 1930.

The author is a distinguished English anatomist who has been working on sensation for the last decade or more. This little book adequately summarizes and discusses the problem of peripheral sensations so that those who would have a general picture of the problems will find it easier to get it here rather than from Head's two large volumes. The author agrees essentially with Head's conception except that he believes deep sensation is also divisible into the epicritic and protopathic types and is conveyed in part at least by the cutaneous nerves. After a description of the facts involved in peripheral sensory losses and the various types of central sensory defects, the author attempts to explain these facts in an argumentative fashion and to combat all those who do not believe in the two types of sensation. New evidence is not added in favor of Head's conceptions. Much is made of the so-called normal protopathic sensation of the glans penis and of the intermediate zone of protopathic sensations after division of a peripheral nerve. The reason for the unequal regeneration of the functions of the two systems is stated to be a difficulty in adaptation of the epicritic type because of the inability of adaptation at its head end or cortex, while the protopathic system can be adapted at its thalamic centers to the regeneration of nerve fibers to wrong end organs. From a logical standpoint this is directly in contradiction to what one might suppose. The book is extremely interesting and worth reading.

Psychotherapie bei organischen Erkrankungen. Von Dr. med. Fritz Mohr, Facharzt für innere und Nervenkrankheiten in Koblenz. Paper. Price, 4.80 marks. Pp. 103. Leipzig: Georg Thieme, 1930.

This small volume is another example of the recent conception of unity of soma and psyche. It is an attempt at better understanding the psychic changes that go along with organic diseases which in themselves may be incurable. The author takes up the special psychotherapeutic methods of modern times and applies them to individual diseases. It is well worth perusal by psychiatrists.

Medicolegal

Malpractice by Examining Physician

(Andrews v. Davis (Me.), 148 Atl. 684)

The plaintiff, a six-year-old child, was struck by an automobile operated by one Bernstein. A fracture of the right leg, near the pelvis, resulted. Bernstein, without consulting the child's parents, engaged the defendant, Davis, to treat her. The parents, however, refused to permit him to do so. The fracture was treated by another physician and a perfect union obtained. Davis, however, told the parents of the injured child that he was employed by Bernstein, by whom the injury was inflicted, or by the insurance company with which Bernstein was insured, to observe the case. From time to time he went to the hospital while the physician in charge of the patient was attending to her needs, claiming that he had the right to be present because of his employment. He took no part, however, in the treatment of the case. Soon after the patient returned to her home, the defendant, Davis, visited her for the purpose of making an examination. While manipulating the injured leg, he caused a new and independent fracture near the knee. It was because of this fracture due to the examination of the patient, and not because of the original injury, that this suit was brought. Judgment was given for the plaintiff, and the defendant appealed to the Supreme Judicial Court of Maine.

Independently of this suit, the injured child brought an action against Bernstein, by whom original injuries were inflicted, damages were assessed and were paid by him, and a release was given of all claims against him. The declaration in the suit against Bernstein did not specifically eliminate nor specifically include the negligence of Davis, the physician employed by Bernstein to observe the injured child while she was under treatment. In the present case, the negligence of the defendant, Davis, was admitted. So also were the injurious results of that negligence. Davis claimed, however, that the judgment given in the suit against his employer, Bernstein, barred the present action. That was the sole issue in this case.

In this case, said the court, the defendant was not "treating" the patient. He had not been employed to treat her, nor did he at any time undertake to do so. He was not acting in her interest; he was examining her in the interest of Bernstein and the insurer of Bernstein, to determine the nature and extent of her injuries and the extent of her recovery from them. He did not aggravate the damage done to the patient by Bernstein; he negligently caused an entirely new and independent injury. For that injury, it was admitted that the patient was entitled to recover damages. The only question was from whom damages should be recovered.

In *Pearl v. West End St. Railway*, 176 Mass. 177, 57 N. E. 339, 49 L. R. A. 826, 79 Am. St. Rep. 302, the question arose as to whether or not damages for an injury caused by the act of an examining surgeon could be recovered from his employer on the ground that the relation of principal and agent existed between them. Chief Justice Holmes, speaking for the court, said:

> The doctor was not an agent or servant of the defendant in making his examination. He was an independent contractor. There is no more distinct calling than that of the doctor, and none in which the employee is more distinctly free from the control or direction of his employer. *See Linton v. Smith, 8 Gray (Mass.) 147; Milligan v. Wedge, 12 Adol. & E.* 737, 741, 742. In this case the doctor was informing himself, according to the suggestions of his own judgment, in order to advise, and perhaps to testify for, the defendant. We must assume, in the absence of other evidence than his profession and his purpose, that what he should do and how he should do it was left wholly to him.

The principle invoked finds support in a long line of decisions dealing with cases not only in which the physician or surgeon was employed to make an examination but also in which he was employed by those responsible for the injury to treat the injured person. If he who is responsible for an injury, without being contractually liable so to do, furnishes gratuitous aid to the injured person, he must use due care in the selection of the physician; but he is not an insurer against such physician's negligence. The relation of master and servant is not created by the employment, unless the employer undertakes to direct the employed physician as to what he shall do and how he shall do it. In the absence of the assumption of such directory power by the employer, the relation of the physician to the injured person is that of an independent contractor, liable for his own torts. Most emphatically is this the case when the arrangement does not include treatment but is limited to examination. The rule finds especially appropriate application when the negligence of the physician results, not in an aggravation of the original injury, but in causing an entirely independent injury, related in no way to the first by any rational line of causation. Such an independent contractor was the defendant in this case. He must answer for his own negligence. The appeal of the defendant from the judgment of the trial court was overruled and the case referred for the assessment of damages.

Evidence: Admissibility of Statements by Patients.—Statements by a patient to his physician, of the patient's bodily ailments, made for the purpose of enabling the physician to give proper medical advice and treatment, may be testified to by the physician, not as evidence of the cause of the ailments but in connection with testimony as to the opinion formed partly on such statements. Mere narration by a patient to his physician of the cause of ailments may not be repeated in evidence. It was competent for the medical witness, after testifying as to the condition of his patient and as to her complaints and symptoms, to give his opinion that they were such as might have been expected from incomplete abortion. Beyond this, what the patient said to the physician was mere hearsay. To the general rule against hearsay, however, there are certain exceptions: dying declarations, declarations called out by the circumstances of a transaction and related to some relevant act, and the declarations of a conspirator, since deceased, during and in furtherance of some criminal enterprise. But a statement by a patient to her physician, that she supposed that if she went back to the man who performed an abortion on her he would take care of her, came within none of these exceptions. Such hearsay was inadmissible.—*State v. Donnell et al. (Maine), 148 Atl. 747.*

Evidence: Failure to Produce Available Medical Evidence.—Counsel for the defendant, in his argument to the jury, commented on the fact that the plaintiff had not produced the roentgenograms which were taken at the hospital and that he had not produced as witnesses two physicians who treated him there. To the rulings of the trial court on his objections to these remarks, plaintiff took exception. He claimed that he did not know the names of the hospital physicians who treated him and that such physicians were just as available to the defendants as they were to him. The production of the roentgenograms was, he said, unnecessary, since he offered other medical evidence of injury to certain of his bones. Moreover, such roentgenograms were public records and were accessible to the defendants under the process of the court. But, said the St. Louis Court of Appeals, Missouri, the burden was on the plaintiff to prove his case, rather than on the defendants to disprove it. So far as the record disclosed, the defendants were not advised that the plaintiff had been treated at the hospital, until he so testified on the witness stand. It would seem to have been incumbent on him, therefore, to seek out the attending physicians and produce them, together with the roentgenograms which they had taken, or else to explain his failure to produce them. In a sense, it was true that, after the patient waived his privilege by his testimony on direct examination, the hospital physicians and roentgenograms were equally available to the defendants, if by equally available it is meant that they were equally subject to process issued at the defendants' request and equally competent to testify and to be put in evidence as a part of the defendants' case. But the term "available" means more than this; it means also that the particular evidence must be equally within the knowledge and power of the opposite party and reasonably expected to be favorable to him. Such was not the case in this instance.

The plaintiff was entitled to pick and choose from the whole of the evidence available to him and to offer only such as seemed wise and expedient to his counsel; but having failed to produce what was peculiarly and particularly within his knowledge and power and what he would naturally have been expected to produce if favorable to him, he was in no position to complain because his adversaries took advantage of his failure and commented to the jury on the inference which the law says was legitimately deducible from that failure.—*Donet v. Prudential Ins. Co. of America et al. (Mo.), 23 S. W. (2d) 1104.*

Evidence: Plaintiff May Testify as to Eyesight.—The appellant contended that the trial court was in error in permitting the appellee to testify that at the time he took out the policy of insurance he had good vision in both of his eyes, that after the accident he had lost the sight in his left eye, and that before the accident he could see out of his left eye as well as he could out of his other eye. Such testimony, the appellant claimed, was made up of mere conclusions of the witness. But, said the Court of Civil Appeals of Texas, Waco, we overrule this proposition. Unquestionably, the appellee had a right to testify that prior to the accident he could see out of his left eye, that after the accident he could not see out of it, and that he had lost the vision in his left eye. These were not conclusions but were statements of facts within the knowledge of the witness.—*Central Texas Mut. Life Assn. v. Parrish (Texas), 23 S. W. (2d) 780.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, October 27-31. Dr. W. P. Wherry, Medical Arts Building, Omaha, Secretary.
American Academy of Physical Therapy, Boston, October 22-24. Dr. Thomas L. Smyth, 111 North Eighth Street, Allentown, Pennsylvania, Secretary.
American Association of Railway Surgeons, Chicago, November 5-7. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.
American Hospital Association, New Orleans, October 20-24. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.
American Public Health Association, Fort Worth, Texas, October 27-31. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.
Central States Pediatric Society, Memphis, Tenn., November 7-8. Dr. A. H. Parmelee, 310 South Michigan Boulevard, Chicago, Secretary.
Interstate Postgraduate Medical Association of North America, Minneapolis, October 20-24. Dr. W. B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.
Medical and Surgical Association of the Southwest, El Paso, Texas, November 6-8. Dr. W. Warner Watkins, Box 1587, Phoenix, Ariz., Secretary.
Radiological Society of North America, Los Angeles, December 1-5. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.
Southern Medical Association, Louisville, Ky., November 11-14. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.
Southern Surgical Association, Lexington, Ky., December 9-12. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.
Virginia, Medical Society of, Norfolk, October 21-23. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.
Western Surgical Association, Kansas City, Mo., December 11-13. Dr. Frank R. Teachenor, 306 E. Twelfth St., Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics & Gynecology, St. Louis

20: 153-292 (Aug.) 1930

*Chorio-Epithelioma: Disappearance of Primary Uterine Tumor. E. Novak and A. K. Koff, Baltimore.—p. 153.
*Blood Platelets in Pregnancy and Puerperium. P. B. Bland, A. First and L. Goldstein, Philadelphia.—p. 165.
*Results of Investigation and Treatment of Streptococcal Puerperal Sepsis at Toronto General Hospital. W. A. Dafoe, Toronto, Ont.—p. 174.
*Hyperthyroidism Associated with Pregnancy. J. W. Hinton, New York.—p. 183.
*Pregnancy Concomitant with Asthma or Hay-Fever. A. C. Williamson, Pittsburgh.—p. 192.
*Fibromyoma Uteri: Treatment and End-Results. F. E. Keene and R. A. Kimbrough, Jr., Philadelphia.—p. 198.
Fundamental Biochemical Factors in Pregnancy. M. Trumper, Philadelphia.—p. 209.
Progress in Endocrinology of Interest to Gynecologist and Obstetrician. R. T. Frank, New York.—p. 215.
*Frank Test for Female Sex Hormone. H. W. Spencer, New York.—p. 220.
Radical in Obstetrics. J. W. Duncan, Montreal, Quebec.—p. 225.
Surgical Pathology of Fibrinoplastic or Adhesive Variety of Tuberculous Peritonitis. J. W. Kennedy, Philadelphia.—p. 236.
Vesico-Abdominal Fistula as Complication of Labor. H. Acosta-Sison, Manila, P. I.—p. 239.
Walter Channing and Etherization in Childbirth. H. Thoms, New Haven, Conn.—p. 244.
Tuberculosis of Cervix. B. A. Harris, New York.—p. 249.
Purpura Hemorrhagica Complicating Puerperium. H. B. Boley, New York.—p. 252.
Anemia in Pregnancy. J. H. Moore, Grand Forks, N. D.—p. 254.
Fatal Bronchial Obstruction in New Born. P. C. Langan, Akron, Ohio.—p. 255.
Use of Tourniquet for Control of Absorption of Solution of Pituitary in Induction of Labor. S. Hanson, Stockton, Calif.—p. 256.
Director for Vaginal Occlusive Pessary. M. D. Mayer, New York.—p. 258.

Chorio-Epithelioma: Disappearance of Primary Uterine Tumor.—After a discussion of the classification of choriomatous tumors, Novak and Koff consider the disappearance of the primary uterine tumor in cases of chorio-epithelioma. A case is reported in which such a disappearance was noted, although the patient later died of extensive metastases in the brain and lungs. That there was an original primary tumor in the uterus was proved by examination of the uterine curettings several months before the patient's death. Necropsy showed no trace of chorionic tissue in the uterus. Other cases of this type which have been reported are reviewed, and the various explanations discussed. The autopsy showed the ovaries to be the seat of characteristic hyperlutein changes, and gave an opportunity of studying the histology of the pituitary body in relation to these changes.

Blood Platelets in Pregnancy and Puerperium.—The blood platelet count for the nonpregnant woman was found by Bland et al. to vary from 200,000 to 350,000 per cubic millimeter. Platelet determinations were made in 230 women in various stages of gestation, and in 100 of these after delivery. It was found that 177 (77 per cent) of the 230 gravid women had from 200,000 to 350,000 platelets per cubic millimeter of blood, while 42 (18.2 per cent) gave a count of more than 350,000. Therefore it may be stated that the blood platelets are not appreciably increased in pregnancy. Twenty-seven per cent of the 100 women gained over 50,000 platelets per cubic millimeter within twenty-four hours after labor, whereas 63 per cent had either a gain of less than 50,000 platelets or had a lower count than in pregnancy. Counts made three to five days after delivery reveal that 55 women (55 per cent) gained more than 50,000 platelets. Of this number, 35 gained over 100,000 platelets. Fifty-one per cent of the counts made on the group of 100 women from eight to ten days after delivery showed a gain of more than 50,000. Twenty-seven of these 51 women gained from 100,000 to 200,000, whereas 6 gained over 200,000 per cubic millimeter.

Results of Investigation and Treatment of Streptococcal Puerperal Sepsis.—Thirty-two per cent of morbidity in the cases reported by Dafoe were due to puerperal sepsis, and in over 50 per cent of these, *Streptococcus hemolyticus* was the causative organism. *Streptococcus hemolyticus* was found to be seasonal in appearance and occasionally present in the genital tract during pregnancy, more often during labor, and most often in the puerperium. Dafoe emphasizes the fact that *Streptococcus hemolyticus* when found in the cervical canal during the puerperium is always a source of danger. Early investigation and immediate treatment of puerperal sepsis cases is essential. Scarlet fever antitoxin has a special value in the treatment of puerperal and postabortal cases of sepsis due to *Streptococcus hemolyticus.*

Hyperthyroidism Associated with Pregnancy.—In Hinton's opinion the two types of cases which need pregnancy interrupted are chronic hyperthyroidism associated with the nodular or adenomatous goiter in which there is a definite myocardial degeneration, and cases of exophthalmic goiter which are of a fulminating type and which endanger the life of the mother by allowing the pregnancy to continue. He estimates that 90 per cent of cases of hyperthyroidism associated with pregnancy can be carried to a normal delivery if properly managed.

Pregnancy Concomitant with Asthma or Hay-Fever.—Williamson reports a group of twenty-seven cases. The asthmatic group bears out almost to a patient the part played by heredity in transmitting the tendency to the disease. In no case was it known that the husband was affected, and yet practically every child showed an eczema or an idiosyncrasy toward food. As far as severity of attacks go, apparently asthmatic persons, as such, seem to have less frequent attacks during the period of gestation and puerperium. A most striking observation is that the attacks with all their paroxysmal sneezings and coughings together with the unpleasant dyspnea do not seem to bring on premature labors or miscarriages. Skin testing has been rather disappointing. It is curious to note that the same mother during gestation with a male child would be free from the discomfort of urticaria or "food poisonings" and yet be most sensitive if pregnant with a female child or vice versa. Equally strange is the fact, too, that one sex would have eczema and no food difficulty while the other sex would have both. It would also seem that there is no reason why the mother should not be treated as though she were not pregnant.

Treatment and End-Results in Fibromyoma Uteri.—Keene and Kimbrough present an analytic study of 254 consecutive cases of myoma uteri. The results following hysterectomy were satisfactory in 92.5 per cent. Lumbar or sacral backache was noted in fifty-five cases before operation. Of these patients, 49.1 per cent were relieved, 23.6 per cent improved, and in 27.2 per cent there was no improvement so far as backache was concerned. In the entire series four deaths occurred, a total mortality of 1.57 per cent. There were no deaths after irradiation, thus making the operative mortality 2.15 per cent. Pulmonary embolism was the cause of death in three patients, and autopsy proved the fourth to be due to massive atelectasis of the lower lobes of both lungs, associated with chronic myocarditis. The deaths from embolus occurred on the sixth, eleventh and fourteenth postoperative days, respectively. Each of these patients had large tumors and, in two, hysterectomy was extremely difficult because of their intraligamentous position. Radium was employed in 21.3 per cent with satisfactory results in 93.7 per cent. Roentgen irradiation was the method of choice in 4.7 per cent, and the results were uniformly good. There were no deaths following irradiation.

Frank Test for Female Sex Hormone.—Frank's test for the female sex hormone in the blood was done by Spencer in a series of twenty-one cases. Twelve of these patients complained chiefly of sterility, with or without menstrual irregularities. Four complained of amenorrhea varying from two months to seven years in duration. Three pregnant and two normal women were tested as controls. The blood of the normal women gave positive reactions preceding menstruation and negative reactions following it. The pregnant cases, in the sixth month or later, invariably gave strongly positive reactions. This is in accord with Frank's observations. In the cases of sterility and amenorrhea there was a great variation in the results obtained. There were five cases of sterility with regular menstruation. Three of these patients gave negative reactions to repeated tests. One later proved to be four weeks pregnant at the time the test was made. One gave a positive test preceding menstruation; another was positive only after the flow. There were four cases of sterility with irregular menstruation. Of these, two gave negative reactions to each test; one was positive before the flow; one gave a slightly positive reaction both before and after the flow. Of the patients with amenorrhea, one with a strongly positive reaction was eight weeks pregnant. Two had definite cycles when a positive reaction was obtained, although negative at other times. One gave a slightly positive reaction on one test. Three gave negative reactions whenever tested. Stimulating roentgen therapy was tried in three cases, with slight improvement in two but with no change in the third.

American Journal of Ophthalmology, Chicago

13: 753-846 (Sept.) 1930

Tuberculosis of Eye. R. I. Lloyd, New York.—p. 753.
Study of Ocular Tuberculosis: Sixteen Cases. G. F. Suker and B. Cushman, Chicago.—p. 781.
Bilateral Coloboma of Optic Disk and Choroid with Coloboma of Right Iris. J. P. Johns, Boston.—p. 792.
Herpes Zoster Ophthalmicus. L. S. Powell, Lawrence, Kan.—p. 796.
Ocular Myiasis. C. P. Schenck, Fort Worth, Texas.—p. 801.
Transient Hyperopia in Diabetes. T. H. Odeneal, Beverly, Mass.—p. 804.
Presbyopia, Bugbear. W. W. Lewis, St. Paul.—p. 806.

American Journal of Surgery, New York

9: 207-363 (Aug.) 1930

Use of Electrosurgery in Neurologic Surgery. L. Davis and B. M. Groen, Chicago.—p. 207.
Nephroptosis: Relation to Liver, Spleen, Stomach and Correction by Means of New Operation. C. L. Deming, New Haven, Conn.—p. 218.
Tuberculosis of Kidney. H. L. Kretschmer, Chicago.—p. 221.
Spinal Anesthesia: Fatalities. H. Koster and M. Weintrob, New York.—p. 234.
Roentgen Evidence of Adhesions of Small Intestine. H. W. Soper and J. W. Thompson, St. Louis.—p. 243.
Pathologic Fractures in Primary Bone Tumors of Extremities. B. L. Coley and G. S. Sharp, New York.—p. 251.
Diagnostic Novocain Block of Sensory and Sympathetic Nerves. J. C. White, Boston.—p. 264.
Therapeutic Nerve Block with Procaine and Alcohol. P. D. Woodbridge, Boston.—p. 278.
Present-Day Uncertainty Regarding Treatment of Uterine Tumors. J. W. Kennedy, Philadelphia.—p. 289.
Tonsillectomy by Diathermy. G. A. Dillinger, Pittsburgh.—p. 294.
Treatment of Syringomyelia by Roentgen Therapy. L. Delherm and M. Morel-Kahn, Paris, France.—p. 302.
Structural Factors in Static Disorders of Foot. D. J. Morton, New York.—p. 315.
New Cystoscopic Rongeur. T. J. Kirwin, New York.—p. 329.
Tendon Transplantation for Irreparable Musculospiral Injury. A. Krida, New York.—p. 331.
Disability of Hand: Two Cases. A. Krida, New York.—p. 332.
Foreign Bodies in Urethra. H. S. Jeck, New York.—p. 335.

American Review of Tuberculosis, Baltimore

22: 233-336 (Sept.) 1930

*Streptothricosis. J. J. Singer and H. C. Ballon, St. Louis.—p. 233.
Primary Aspergillosis of Lungs: Case. L. V. Schneider, State Sanatorium, Md.—p. 267.
Tuberculosis and Cancer. W. C. Hueper, Philadelphia.—p. 271.
*Relation of Anatomic Variations to Physical Diagnosis: I. Physical Signs Incident to Accessory Pulmonary Lobe (Azygos Lobe). G. Mackmull, Philadelphia.—p. 286.
Improved Technic for Selective Pneumothorax. J. W. Cutler, Eagleville, Pa.—p. 292.
*Electrocardiographic and Roentgenographic Studies of Heart in Tuberculosis. F. W. King and O. S. Hansen, Oak Terrace, Minn.—p. 310.
*Influence of Pulmonary Collapse on Electrocardiogram. O. S. Hansen and F. W. King, Oak Terrace, Minn.—p. 320.

Streptothricosis.—A case of streptothricosis, possibly primary in the lungs, is reported by Singer and Ballon. Streptothrix was found clinically in the gums, sputum, pus from superficial abscesses and, at necropsy, in practically every organ of the body. The signs and symptoms of the disease in this instance were fever, moderate leukocytosis, and those referable to the different organs involved. Thus, at first, they were of a nephritis, later of a bone disease, and last of a widespread involvement of the lungs, ribs and chest wall. Throughout the illness there was a persistent but quite unexplained purpura. Treatment in this instance consisted of potassium iodide by mouth. Massive doses were given until the signs of iodism were produced. The patient also received several injections of iodized oil by the aspiration method. The abscesses of the chest wall were incised and drained. Pathologically the lesion in the lung was associated with pulmonary tuberculosis. Tubercle bacilli could be demonstrated from direct smear in pus obtained from the abscess cavities. At no time during the course of the disease could tubercle bacilli be demonstrated in the sputum. The frequent occurrence of gram-positive nonacid-fast anaerobic streptothrix with tubercle bacilli in the sputum of patients with pulmonary tuberculosis has been noted by one investigator. Such streptothrices were nonpathogenic for guinea-pigs. Others have also noted the association of tuberculosis and streptothricosis. It would seem that the important consideration is that the organism must be pathogenic for guinea-pigs. The lesions in the lung showed the characteristic nodular formation with necrosis and abscess formation. There were few proliferative changes and consequently little or no evidence of bronchiectasis.

Relation of Anatomic Variations to Physical Diagnosis.—A case of an accessory lobe (azygos lobe) of the upper lobe of the right lung is reported by Mackmull. The physical signs incident to this anomaly resembled those of pulmonary tuberculosis.

Studies of Heart in Tuberculosis.—Studies of electrocardiograms and roentgen plates have been made by King and Hansen in 100 unselected cases of tuberculosis. The diameter of the heart was found to be lower in this series than in normal individuals, as reported by Groedel and by Norris and Landis. The average weight of the heart in this series is on the whole lower than in the nontuberculous, as recorded by various observers. Nearly one third of this group had a cardiothoracic index below 40 per cent, as compared with one-fifth (21 per cent) in the normal. Low voltage of the Q-R-S complex in one or more leads occurred sixty times in the series. Of these sixty cases, 21 per cent were found in lead 1, 27 per cent in lead 3, and 12 per cent in leads 1 and 2, as compared with 8 per cent, 38 per cent and 1 per cent in the nontuberculous.

Influence of Pulmonary Collapse on Electrocardiogram.—Electrocardiograms have been studied by Hansen and King in sixty-six patients who have undergone seventy-three pulmonary collapse procedures (pneumothorax, phrenic exeresis, thoracoplasty), analyzing the conditions found before and after collapse. These procedures are almost invariably followed by changes in amplitude of the electrocardiographic waves, R wave modification occurring in 96 per cent of the cases, but the type and degree of variation is not constant or predictable, according either to the side involved or to the procedure carried out. Evidence suggests that the changes are due to changes in heart position, influenced largely by pleural and mediastinal adhesions, more than by myocardial factors.

Archives of Dermatology & Syphilology, Chicago

22: 381-604 (Sept.) 1930

Diagnosis of Sporotrichosis. T. K. Lawless, Chicago.—p. 381.
Hodgkin's Disease of Skin: Case. R. H. Rulison, New York.—p. 389.
Fungus-Infected Nails. E. M. Rockwood, Boston.—p. 395.
*Piedra. C. G. Aars, Paramaribo, Dutch Guiana, S. A.—p. 401.
Trichophytin Hypersensitiveness Demonstrated by Contact Tests. M. B. Sulzberger and G. M. Lewis, New York.—p. 410.
*Cavernous Hemangioma and Trauma: Case. J. G. Downing and G. K. Mallory, Boston.—p. 414.
Dermatitis Hemostatica: Case. F. A. Diasio, New York.—p. 423.
Joseph Grünpeck of Burckhausen and His Tractatus De Pestilentiali Scorra Sive Mala de Franzos. W. R. Riddell, Toronto, Canada.—p. 430.
*Clinical Value of Bismarsen in Treatment for Syphilis. C. H. deT. Shivers, Atlantic City, N. J.—p. 462.
*Response of Serologic Tests to Treatment: Early Syphilis. R. L. Gilman and M. C. McIntyre, Philadelphia.—p. 470.
*Clinical Excretion of Bismuth: Bismuth Metal. P. J. Hanzlik, H. G. Mehrtens, D. C. Marshall, F. Watson and J. Spaulding, San Francisco.—p. 483.
Diagnosis File for Syphilis Clinics. J. E. Moore, Baltimore.—p. 496.
Hemoclastic Complement-Fixation Test in Syphilis. R. A. Kilduffe, Atlantic City, N. J.—p. 504.
Artistic Tattooing in Dermatology. L. Filips, New York.—p. 507.

Piedra.—A description of piedra is given by Aars, based on sixty cases observed in Dutch Guiana. The condition is frequently encountered in Paramaribo; it occurs in men more often than in women. Though the occurrence of piedra is common in Dutch Guiana, the condition is of little importance from the point of view of the patient. The fungus is not a true ectothrix; in many cases the cuticle of the hair was seen to be damaged by the parasite. The disease involves only the shaft of the hair, not the root. The infectiousness of the fungus is slight. Therapy is simple. In severe infections, it is advisable to cut off the hairs entirely; good results can be obtained by applying macerating antiseptic lotions and by combing the hair regularly with a fine comb.

Cavernous Hemangioma and Trauma.—A case is presented by Downing and Mallory which is considered as a true hemangio-endothelioblastoma occurring after trauma. While the patient was riding in a wagon during October, 1918, a shell exploded nearby, killing the horses and rendering him unconscious. He regained consciousness and found his neck, face and shoulders bandaged. When the dressings were removed, the left side of his face, neck and shoulder was covered with crusts and serous fluid. About three months after the injury, the patient noticed a deep swelling on the left side of the neck. This swelling continued to increase in size. Gradually red and blue spots and nodular swellings began to appear all over the injured area.

Value of Bismarsen in Treatment for Syphilis.—Shivers has made a careful study of 152 patients suffering from all types of syphilis who were placed on bismarsen therapy. The use of twenty injections of neoarsphenamine of 0.6 Gm. each and twenty injections of potassium bismuth tartrate of 0.1 Gm. each was more efficient than bismarsen alone in sterilizing patients who have early syphilis. Therefore, in this stage the latter drug should be used only as a second course; thus a larger percentage of patients will be completely sterilized and at the same time complications which frequently occur during the second course of intravenous treatment will be avoided. Those in whom bismarsen may be the only drug used for early syphilis are old people, debilitated persons and patients in whom syphilis is complicated by another disease. In late syphilis, bismarsen is more frequently the drug of choice when one wishes to administer arsenic and bismuth, as the reactions are much fewer and consequently the danger less. The clinical improvement and effect on the Wassermann reaction have been very favorable. The clinical effect of this drug in cerebrospinal syphilis, especially of the acute meningeal type, has been most striking.

Response of Serologic Tests to Treatment.—In a study made by Gilman and McIntyre of 105 cases of syphilis comprising both early and latent types in patients under treatment, involving 910 serologic tests in duplicate, the initial agreement between the Kolmer-Wassermann test and the Kahn precipitation test was 91.4 per cent and the disagreement was 8.6 per cent. In the 83 cases comprising the group of patients with untreated early syphilis, the agreement was 95.2 per cent, and included in this was the 100 per cent agreement between the tests in cases of untreated secondary syphilis. In the 22 cases of latent syphilis before treatment there was 77.2 per cent agreement and 22.8 per cent disagreement. In 9 cases of syphilis in which there was disagreement between the two tests, the Kolmer-Wassermann test was positive in seven, and the Kahn precipitation test was positive in two. Subsequent comparison of the two tests during treatment showed in the aggregate a close agreement throughout observation. Although the Kolmer-Wassermann test was found to be more sensitive in untreated syphilis, either test alone furnishes adequate serologic control during treatment.

Clinical Excretion of Bismuth.—Hanzlik et al. found that the clinical excretion of bismuth after the intramuscular injection of bismuth metal in doses of from 0.15 to 2.1 Gm. was found to be slow, irregular, prolonged and incomplete. The daily excretion fluctuated considerably in different subjects, being characterized by a gradual increase, which reached a peak or maximum in from six to twenty-eight days after administration, the time increasing proportionately with the dosage and a gradual decrease occurring until the output reached about 0.5 mg. a day. The duration of excretion after two or more single doses persisted for at least three months, thus agreeing generally with roentgen studies of muscle depots. The maximum daily excretion increased out of proportion to the increase in dosage in different subjects, indicating that accumulation of bismuth in the tissues would not necessarily increase in proportion to dosage. The desirability of using small repeated doses instead of intensive medication for maintaining a uniform saturation of the tissues in the treatment for syphilis is suggested. The total urinary excretion was extremely variable and comparatively small. In the three subjects in whom this was definitely ascertained, it amounted to 0.4, 54.6 and 31.3 per cent, respectively, of the total doses administered; namely, 0.15, 0.6 and 1.2 Gm. The total excretion decreased with increasing doses in different subjects, according to the percentage of the total administered and also absolute amounts during comparable periods. This decrease was not due to escape of bismuth into the feces, since the excretion in feces was too small over a considerable range of dosage in different persons. The median excretion in urine was about eight times that in the feces, thus indicating that the kidney was the main organ of excretion, a result which correlates with the high selectivity of bismuth for this organ. The bismuth unaccounted for remains in part as a depot at the site of injection, from which it is slowly liberated, a part of the latter being stored in viscera and the whole being excreted from the body slowly in traces over periods of months. Contrary to impressions from roentgen studies of muscle depots, the results obtained show that bismuth metal injected intramuscularly is absorbed, since traces of bismuth in urine are demonstrable on the day following injection, the quantities being definite on the second to third day, and bismuth persisting in urine during at least three months after two or more single doses of 0.15 Gm. It is undesirable to attempt rapid saturation with high doses, since total doses of from 0.6 to 2.1 Gm. of bismuth metal tend to decrease the absolute total output despite a tendency to increased maximum daily output out of proportion to the increase in dosage.

Archives of Pathology, Chicago

10: 179-348 (Aug.) 1930

*Pulmonary Siderosis: Two Cases with Reticulo-Endothelial Siderosis. M. G. Bohrod, Decatur, Ill.—p. 179.
*Giant Cells of Benign Giant Cell Tumors of Bone. W. W. Johnson, San Francisco.—p. 197.
*Congenital Atresia of Tricuspid Orifice. P. J. Breslich, Chicago.—p. 206.
Infection of Rabbits with Anthrax Bacillus by Way of Trachea. B. M. Fried, Boston.—p. 213.
Comparison of Autotransplantation, Homoiotransplantation and Heterotransplantation of Blood Clots. L. Loeb, St. Louis.—p. 224.
Comparative Study of Certain Methods for Estimation of Hemoglobin. C. A. Pons and M. Schneider, Long Branch, N. J.—p. 238.
Smallpox and Vaccinia. R. D. Lillie, Washington, D. C.—p. 241.

Pulmonary Siderosis.—Two cases of pulmonary siderosis are reported by Bohrod. One, in which the dust was metallic iron, produced the black variety of siderosis and ended in a florid tuberculous bronchopneumonia. One, in which the dust was iron ore, produced the siderosis of the red variety and the concomitant tuberculosis of the fibrotic type and limited to the lymph glands. In both cases there was a continuous attempt at excretion of the iron by macrophages which carried it into the alveoli and thence into the sputum, by excretion through the bronchiolar mucosa or by transference to the lymph nodes. In the last event, the pigment was either deposited in the gland or was carried through the gland and reached the blood stream probably by way of the thoracic duct. Having reached the blood stream, the iron was deposited in the cells of the reticulo-endothelial system. In addition to transportation, there was gradual transformation of the iron. Only the soluble iron could be transported and was found intracellularly. In the black variety, in which more silicon than iron was present in the lung, only the more soluble iron found its way into the blood stream. Insoluble iron was found extracellularly in dense fibrous tissue. Where the accumulations of iron were greatest, the amounts present were 8.9 and 7.9 per cent of the moist weight of the lungs.

Giant Cells of Benign Giant Cell Tumors of Bone.—On microscopic examination of giant cells from eleven specimens of benign giant cell tumors of bone, Johnson has found that giant cells are most numerous where the vascular tissue is most abundant; that giant cells form a portion of the lining of blood vascular spaces; that there is no break in continuity between early giant cells and the endothelial lining of the vascular spaces; that the giant cells lie in immediate contact with living blood elements without the interposition of an endothelial lining; that excavations or hollows in the giant cells communicate directly with the lumen of blood vessels, and that the "holes" seen frequently in the body of a giant cell are in reality the lumen of newly formed blood vessels, many of them being filled with blood. These observations show that the giant cells of benign giant cell tumors of bone arise from the endothelium of the blood capillaries.

Congenital Atresia of Tricuspid Orifice.—The postmortem examination of an infant, aged 8½ months, disclosed congenital atresia of the tricuspid orifice of the heart associated with defects of the interauricular septum, hypoplasia of the right ventricle and a subaortic defect of the interventricular septum. Breslich says that the most important symptom of this lesion clinically was cyanosis, increased by slight exertion, with an associated loud systolic murmur of the heart heard over the entire precordium. The developmental defects of the heart were similar to those which Kühne and Wieland described as simple tricuspid atresias, of which about thirteen cases have been recorded.

Arkansas Medical Society Journal, Little Rock

27: 49-74 (Aug.) 1930

Some Unsolved Problems of Syphilis. L. Thompson, Hot Springs National Park.—p. 49.
Irritability of Alimentary Canal: Treatment. B. A. Rhinehart, Little Rock.—p. 53.

Journal of Comparative Psychology, Baltimore

10: 325-445 (Aug.) 1930

Gradual vs. Abrupt Withdrawal of Guidance in Maze Learning. L. S. Tsai, Chicago.—p. 325.
Sex Differences in Maze Learning by White Rats. S. M. Corey, Urbana, Ill.—p. 333.
Apparent Conditioned Response in Nereis Virens. M. Copeland, Brunswick, Maine.—p. 339.
Performance of White Rat in Rotated Maze. G. D. Higginson, Urbana, Ill.—p. 355.
Attention and Emotion. E. B. Skaggs, Detroit.—p. 375.
Learning Curves: Application of Meyer's Arc Cotangent Function and Thurstone's Hyperbola to Maze Performance of White Rats. W. L. Valentine, Columbus, Ohio.—p. 421.
Blood Pressure Changes in Deception. C. Landis, Middletown, Conn. —p. 437.

Journal of Infectious Diseases, Chicago

47: 83-170 (Aug.) 1930

Pleomorphic Micro-Organism Associated with Acute Infectious Avian Laryngotracheitis. R. Graham, F. Thorp, Jr., and W. A. James, Urbana, Ill.—p. 83.
Subacute or Chronic Infectious Avian Laryngotracheitis. R. Graham, F. Thorp, Jr., and W. A. James, Urbana, Ill.—p. 87.
*Length of Survival of Paratyphoid Bacilli in Foodstuffs. L. P. Doyle, LaFayette, Ind.—p. 92.
Nutrose Medium. S. H. McNutt and P. Purwin, Ames, Iowa.—p. 95.
*Influence of Complement on Sensitiveness of Complement-Fixation Tests for Syphilis. L. C. Havens and F. M. Frank, Montgomery, Ala.—p. 100.
Present Knowledge of Etiology of Trachoma. C. Weiss, St. Louis.—p. 107.
Effect of Feeding on Rate of Removal of Prodigiosus Bacilli from Blood of Dogs. J. C. Rheingold, Chicago.—p. 130.
Pure Cultures of Clostridium Butyricum Iodophilum from Human Feces. N. Svartz, Stockholm, Sweden.—p. 138.
*Tuberculosis: I. Allergic, Anaphylactic and Immune Reactions in Guinea-Pigs Following Inoculation with Heat-Killed Tubercle Bacilli. A. Branch and J. R. Cuff, Boston.—p. 151.

Survival of Paratyphoid Bacilli in Foodstuffs.—Experiments were made by Doyle regarding the persistence of agglutinogens in certain canned vegetables that had been inoculated with strains of bacilli of the paratyphoid-enteritidis group. Moreover, an attempt was made to obtain some information as to how long the bacilli themselves may live when they are introduced into canned foods. He found that the length of time for which paratyphoid bacilli lived after being introduced into certain canned vegetables varied within wide limits. *S. aertrycke* remained alive in canned spinach for three years. *S. aertrycke* and *S. enteritidis* agglutinogens were easily demonstrated in unheated corn, spinach and peas three years after inoculation. *S. aertrycke* agglutinogens were clearly demonstrable in the vegetables after being heated. Relatively slight heating apparently destroyed or greatly reduced the enteritidis agglutinogens.

Influence of Complement on Sensitiveness of Complement-Fixation Tests for Syphilis.—Havens and Frank assert that tests of 1,066 serums, the unit of complement obtained by titration with serum and antigen being used, yielded 45 positive results which were negative with the standard test. Agreement between the complement-fixation test, the serum unit being used, and the Kahn precipitation test was 99.4 per cent, as compared with 95 per cent agreement when the standard Kolmer test with the full unit of complement was used. In 106 treated patients with syphilis, 29 positive results were obtained with the standard test, 61 with the serum unit and 65 with the Kahn precipitation test.

Allergic Reactions in Guinea-Pigs Following Inoculation with Heat-Killed Tubercle Bacilli.—Branch and Cuff used the guinea-pig as the experimental animal and tubercle bacilli from man (strain H 37, Saranac Lake) as the bacterial antigen. Allergy and anaphylaxis in tuberculosis are independent phenomena, and immunity may be present without allergy. Intramuscular inoculation with heat-killed tubercle bacilli (and probably also intravascular inoculation) produces immunity and anaphylaxis without allergy, whereas intraperitoneal and intrapleural inoculation produces allergy, anaphylaxis and immunity. The development of allergy appears to be interrelated with the process of caseation. The practicability of prophylactic immunization of children by intramuscular inoculation with heat-killed virulent tubercle bacilli is suggested, the advantage being that if immunity can be obtained without allergy the valuable tuberculin skin test, if later positive, is evidence of infection and not the result of the vaccination.

Minnesota Medicine, St. Paul

13: 599-678 (Sept.) 1930

Primary Carcinoma of Lungs and Bronchi. E. V. Goltz, St. Paul.—p. 605.
Childhood Type of Tuberculosis. E. F. Johnson, Nopeming.—p. 613.
Ocular Manifestations of Hysteria in Children. J. M. Robinson, Duluth. —p. 618.
Valvular Heart Disease in Young Adults. C. A. McKinlay, Minneapolis. —p. 624.
*Clinical Aspects of Sclerotic Changes in Aortic Valve. C. B. Drake, St. Paul.—p. 628.
*Status of Tinted Lenses. L. W. Fink, Minneapolis.—p. 632.
Stone in Upper Urinary Tract: Clinical Manifestations and Treatment. P. F. Donohue, St. Paul.—p. 636.
Carcinoma of Stomach. K. W. Anderson, Minneapolis.—p. 643.
Ambrose Paré—Military Surgeon. H. E. Hullsiek, St. Paul.—p. 648.
Hyperthyroidism. E. G. McLane, Sleepy Eye.—p. 652.

Clinical Aspects of Sclerotic Changes in Aortic Valve.—The four cases reported by Drake were all in elderly individuals none of whom had a rheumatic history or (except a slight thickening of the mitral valve in one case) a demonstrable lesion in any but the aortic valve. In all four cases, stenosis of the aortic valve was the predominating lesion. A striking feature was the absence of a systolic thrill in any of the cases reported. This was probably due to an insufficient velocity of the blood stream as a result of a weak myocardium. Although the aortic valve was doubtless insufficient in some of the cases reported, no diastolic murmur was heard in any of the cases. This was doubtless due to the accompanying stenosis, which prevented an elevation of the systolic blood pressure and thus the pressure and velocity of the return blood flow through the aortic valve was insufficient to produce a murmur. The pulse pressure in all four cases was within normal limits in spite of regurgitation undoubtedly being present in at least some of these cases. The only explanation of this phenomenon is that, the greater the stenosis, the less the regurgitation possible, and the regurgitation is not sufficient to affect the pulse pressure noticeably. Systolic murmurs heard over the mitral region and transmitted to the axilla were not due to demonstrable lesions in the mitral valve. While they may have been caused by a relative mitral insufficiency, they were probably the transmission of the murmur produced by the stenosed aortic valve. Atheroma of the aorta was not a prominent feature in these cases, although there was evidence of marked arteriosclerosis elsewhere in every case reported.

Status of Tinted Lenses.—The prescribing of tinted lenses for the apparently healthy eye without tangible and sufficient reason for so doing is condemned by Fink. It is not only unscientific but in many cases positively contraindicated. When one stops to realize that under ordinary circumstances the sound eye needs no protection against ultraviolet rays and that the tinted lens cuts down the visible rays from 15 to 35 per cent or more, depending on the shade, it is inconceivable that a tint without full and sufficient reason should be prescribed. The retina is stimulated into activity by visible rays. Any means that lessen this stimulus interfere with the perceptive apparatus to some extent. It is true that certain individuals with apparently sound eyes are made miserable in ordinary sunlight. These individuals may be pathologically affected, in that adaptation is slow or that adaptation, when once effected, is below normal, or they may in reality be mentally or physically abnormal. Often in physical diseases or neurasthenia the general function of the eye is impaired, and in this type of patient help is needed. Where the glare exists in moderate amount, attention should be directed to the lighting arrangement and hygienic measures before the easier method of tinted lenses is employed. If this were done, many cases of asthenopia attributed to light effects would be cured without cutting down the luminous spectrum. In the myopic eye a tinted lens is more often needed. Here it is advisable to use a soft tint to cut down the sharpness of the image. Ophthalmologists should not be misled by advertising claims of optical houses that seek to popularize the routine prescribing of absorptive lenses, but should consider the absorptive glass as a therapeutic procedure to be used when indicated, and realize that it can be just as harmful to certain eyes as it can be helpful to others.

Nebraska State Medical Journal, Norfolk

15: 337-376 (Sept.) 1930

Configuration of Heart in Cardiac Disease. A. L. Smith, Lincoln.—p. 337.
Psychosis: Milder Forms, Treated as Physical Disorders. G. W. Dishong, Omaha.—p. 344.
Undulant Fever. M. C. Howard, Omaha.—p. 349.
Postoperative Pulmonary Collapse. R. W. Bliss, Omaha.—p. 353.
Relief of General Edema by Medical Treatment. L. F. Egen, Hastings.—p. 357.
Meralgia Paresthetica. G. E. Neuhaus, Omaha.—p. 360.
Hyperthyroidism in Children Under Ten Years of Age. H. C. Miller, Omaha.—p. 363.

New England Journal of Medicine, Boston

203: 441-498 (Sept. 4) 1930

Rôle of Roentgen Ray in Diagnosis of Carcinoma of Colon. L. B. Morrison, Boston.—p. 441.
Diagnosis and Principles of Treatment of Carcinoma of Colon. E. P. Richardson, Boston.—p. 455.
Diverticulitis of Colon: Relation to Carcinoma. D. F. Jones, Boston.—p. 459.
Results of Treatment of Carcinoma of Colon at Peter Bent Brigham Hospital, Boston. D. Cheever, Boston.—p. 462.
Intravenous Urography. F. H. Colby, Boston.—p. 470.
*Primary Carcinoma of Lung. M. Fremont-Smith, J. Lerman and P. D. Rosahn, Boston.—p. 473.
Solution of Rural Health Service in Massachusetts. G. H. Bigelow and W. W. Knowlton, Boston.—p. 477.
Some Phases of Dentistry Which Should Concern Medical Practitioner. O. M. Littlefield, Manchester, N. H.—p. 479.

Primary Carcinoma of Lung.—The most constant symptoms in the series of eighteen cases reported by Fremont-Smith et al. were dyspnea and cough, noted in sixteen and fourteen instances, respectively. Chest pain was present in twelve patients. Sputum was specifically mentioned in the records as present in twelve cases. In six the sputum was frankly bloody, in the remaining six, streaked with blood. "Currant jelly" sputum was not observed. Definite clubbing of the fingers was noted in five instances. Five patients were afebrile while in the hospital wards. All the others had more or less fever. In one case with an unusually malignant tumor, a few days of fever alternated with short periods of normal temperature over several weeks. Anemia was frequently present but usually slight. The blood pressure was consistently low, in view of the ages of the patients. Pleural effusion was demonstrated clinically in eight cases. The effusion was clear or turbid in five and sanguineous in three. They assert that, in a man past middle age, onset of pain in the chest, dyspnea or hemoptysis should lead to the suspicion of pulmonary neoplasm. The onset of symptoms may be insidious or fairly acute. A period of declining health and loss of body weight may or may not precede the pulmonary symptoms. The first symptoms recognized by the patient may be due to metastases. A unilateral, sharply defined area of dulness and diminished breathing, suggestive of encapsulated fluid, may be due to cancer of the lung. Early in the disease, examination of the chest may be negative.

New Orleans Medical & Surgical Journal

83: 125-200 (Sept.) 1930

First Years of Practice. C. J. Miller, New Orleans.—p. 125.
Malta Fever. C. L. Eshleman, New Orleans.—p. 128.
Psittacosis. H. D. Bruns, New Orleans.—p. 132.
Id.: Review. W. R. Wirth, New Orleans.—p. 132.
Gross and Microscopic Pathology in Chronic Maxillary Sinus Disease. R. Harris, Jackson, Miss.—p. 138.
Sinus Diseases in Children. R. C. Lynch, New Orleans.—p. 144.
Tonsillectomy Hemorrhages. E. F. Howard, Vicksburg, Miss.—p. 149.
Surgical Diseases of Spleen. H. R. Shands, Jackson, Miss.—p. 156.
Flocculation Test for Syphilis. T. W. Kemmerer, Jackson, Miss.—p. 159.
What Result May We Expect in Treatment of Allergic Diseases? N. F. Thiberge, New Orleans.—p. 162.
Educational Needs of Present-Day Nursing. H. A. Gamble, Greenville, Miss.—p. 165.
Peripheral Polyneuritis. A. B. Pavy, Opelousas, La.—p. 167.
Abdominal Pregnancy: Case, Probably Tubal in Origin. W. C. Jones and T. J. Parks, Fairfield, Ala.—p. 169.

New York State J. Medicine, New York

30: 1015-1076 (Sept. 1) 1930

Preoperative and Postoperative Treatment of Hyperthyroidism. W. B. Parsons, Jr., New York.—p. 1015.
How Shall We Lower Maternal Mortality? J. H. Barry, New York.—p. 1019.
Diabetes Insipidus: Case. F. Williams, New York.—p. 1023.
Scabies and Tinea. E. F. Traub, New York.—p. 1027.
Acute Surgical Conditions of Abdomen. A. M. Dickinson, Albany.—p. 1029.
Doctor as Seen by Detail Man. J. B. Martell, New York.—p. 1034.
Treatment of Constipation. E. Boros, New York.—p. 1035.
Hypertensive Heart. J. P. O'Hare and W. Egloff, Boston.—p. 1037.
Headache with Sore Scalp. G. B. Fernlund, Richmond Hill.—p. 1041.

Ohio State Medical Journal, Columbus

26: 729-808 (Sept. 1) 1930

*Problems of Medical Service. W. C. Rappleye, New Haven, Conn.—p. 749.
Incidence and Mortality of Intestinal Obstruction. E. J. McCormick, Toledo.—p. 755.
*Thyroid in Pregnancy. J. L. Reycraft, Cleveland.—p. 759.
Considerations of Normal Child Mentality. E. A. North, Cincinnati.—p. 762.
*Trichomonas Vaginalis. R. L. Faulkner, Cleveland.—p. 765.
Gold Headed Cane. P. D. Scofield, Columbus.—p. 767.

Problems of Medical Service.—The growth of industrial medicine and discussion of the possibilities of some form of sickness insurance in this country, Rappleye says, require that all those interested in medical care shall keep clearly in mind that the most important factor in a sound medical service is the quality of medical care, not the scheme of organization or the method of financing. There are features of finance, problems of organization and interests of the public in this problem of medical care, but the essential character of it is professional and technical. The quality, interpretation and correlation of scientific knowledge depend on trained personnel who know the significance of that knowledge and how to use it. He concludes: There are two outstanding trends of our age, the democratic and the scientific. The hope of democracy depends on leadership. We look for such leadership in law, education, business and banking and there is no reason why the public should not expect it of medicine. We possess the knowledge and personnel to solve a large national problem and possessing that knowledge, we are responsible for working out a satisfactory solution. We cannot hope to enjoy the leadership to which we are rightly entitled in modern society by constant opposition to proposals intended to deal with medical problems, even when those proposals are vague and obviously unsatisfactory or when proposed by those unfamiliar with the essential character of the problem. What we need is a constructive and sustained program directed and supported by the best brains of the medical profession which will aim to provide, control and retain leadership in health matters and in the program of medical services through proper organization of the profession, sound schemes of medical and postgraduate education and wise constructive public policy and publicity. That is the challenge to the organized medical profession in this country which can be met only by wise, far-seeing unselfish, constructive leadership.

Thyroid in Pregnancy.—Reycraft asserts that at least 30 per cent of Ohio women in the child-bearing age normally have thyroid enlargement. Over 50 per cent of pregnant women show thyroid enlargement and some of these will sooner or later show symptoms of toxic goiter. Routine prophylactic treatment instituted early in pregnancy is recommended. Hyperthyroidism in the pregnant woman can be treated medically and surgically without danger to the fetus, and seldom, if ever, is therapeutic abortion indicated because of this complication.

Trichomonas Vaginalis.—Faulkner has found *Trichomonas vaginalis* in certain cases of resistant leukorrhea: 1. In seven patients with long standing recurrent leukorrhea and normal cervices. Some of these had been treated for months by ordinary methods with temporary relief, but not cured. One had been made worse by cauterizing the cervix. 2. In one patient with a leukorrhea, who had had a panhysterectomy two years before. 3. In two young unmarried women with discharges troublesome only after menstruation. 4. In two patients with irritating leukorrhea after the menopause. 5. In one patient with a foul leukorrhea during pregnancy. 6. In a final patient who had an exacerbation of leukorrhea without gonococci, four months after a gonorrheal infection was pronounced cured. In this case perhaps the normal vaginal flora was thrown out of order by the preceding gonorrheal infection and treatment therefor. All of these patients were relieved of symptoms by treatment with 10 per cent aqueous solution of methylene blue (methylthionine chloride U. S. P.) applied freely to the vagina and a boroglyceride pack. Lactic acid douches, 1 or 2 per cent, restore the normal vaginal flora. The patient is cautioned to avoid contamination of the genital tract after bowel movements.

Public Health Reports, Washington, D. C.

45: 2013-2075 (Aug. 29) 1930

Psittacosis: Epidemiologic Considerations with Reference to 1929-1930 Outbreak in United States. C. Armstrong.—p. 2013.

Acute Response of Guinea-Pigs to Vapors of Some New Commercial Organic Compounds: VI. Dioxan. W. P. Yant, H. H. Schrenk, C. P. Waite and F. A. Patty.—p. 2023.

Surgery, Gynecology and Obstetrics, Chicago

51: 289-448 (Sept.) 1930

Principles of Treatment of Nonunion of Fracture. F. H. Albee, New York.—p. 289.

Primary and Secondary Ovarian Cancer. M. R. Robinson, New York. —p. 321.

*Value of Mercurochrome as Vaginal Antiseptic: Use in Obstetric Cases. H. W. Mayes and S. Ullian, New York.—p. 345.

Sodium Amytal-Nitrous Oxide Anesthesia for Thyroidectomy. F. B. Ramsey and W. D. Little, Indianapolis.—p. 352.

Effects of Sodium Amytal on Liver Function; Rate of Secretion and Composition of Urine; Reaction, Alkali Reserve, and Concentration of Blood; Body Temperature. W. Bourne, M. Bruger and N. B. Dreyer, Montreal, Canada.—p. 356.

Tribromethyl Alcohol (Avertin) Anesthesia. C. S. White and J. Kreiselman, Washington, D. C.—p. 361.

Surgical Treatment of Ulcers of Superior Third of Stomach (Groove Resection). V. Pauchet and G. Luquet, Paris, France.—p. 367.

Billroth I Resection of Stomach. K. Friedbacher, Duesseldorf, Germany. —p. 378.

Operative Measures in Treatment of Affections of Lumbosacral and Sacro-Iliac Articulation. W. C. Campbell, Memphis, Tenn.—p. 381.

Fractures of Acetabulum. W. R. Cubbins, A. H. Conley and J. J. Callahan, Chicago.—p. 387.

*Elimination of Pain in Obliterative Vascular Disease of Lower Extremity. R. H. Smithwick and J. C. White, Boston.—p. 394.

Intravenous Urography. H. L. Kretschmer, Chicago.—p. 404.

Intravenous Urography in Diagnosis of Urologic Diseases in Childhood. A. Hyman, New York.—p. 409.

*Treatment of Irreducible Intussusceptions in Children. A. H. Montgomery and J. J. Mussil, Chicago.—p. 415.

Mercurochrome-220 Soluble as Vaginal Antiseptic in Obstetrics.—A comparative study made by Mayes and Ullian of the bacterial flora of the birth canal with and without the use of mercurochrome as a vaginal antiseptic showed that the number of positive cultures from the vagina was reduced from 44 per cent to 6 per cent; from the cervix, 16 per cent to 4 per cent; from the membranes, 32 per cent to 6.4 per cent. Positive cultures were obtained in twenty-six different patients and in only one instance was there a positive vaginal and cervical culture in the same patient. More positive cultures were obtained in primiparas than in multiparas. Of thirty cultures taken from eleven patients who had only vaginal examinations, one was positive. The cases with the vaginal and rectal examinations showed the most pathogens. The number of pathogens in the vaginal cultures increased with the duration of labor, while with the cultures from the cervix and membranes this did not obtain. With ruptured membranes the positive vaginal cultures increased up to eighteen hours of labor, but in thirty-six cases in labor over eighteen hours only one positive culture was obtained from the vagina and two from the cervix. In thirty-four cultures when the membranes were ruptured over twelve hours, one positive pathogen was found. If the patients were instilled at the time of delivery, 18.18 per cent showed pathogenic organisms in the vaginal cultures, while fifty-two patients who had the mercurochrome in the vagina less than three hours were all considered negative. There were more than twice as many positive vaginal cultures obtained in the operative than in the spontaneous deliveries. With the cervical cultures there were less in the operative. In a control series of twenty-five cases in which no mercurochrome was used, seven times as many positive vaginal cultures were obtained, four times as many from the cervix and five times as many from the membranes. The morbidity was three times that of the year 1928. Nine cultures taken from the interior of the uterus at cesarean section were all negative. These results undoubtedly prove that mercurochrome does reduce the bacterial content of the birth canal during labor, and even though the membranes are ruptured and labor prolonged, if the mercurochrome is instilled regularly and properly the number of pathogens apparently does not increase either in the cervix or in the membranes.

Elimination of Pain in Obliterative Vascular Disease of Lower Extremity.—Smithwick and White assert that it is rarely necessary to amputate an extremity because of pain, and furthermore that extremities which hitherto have been undoubtedly doomed to amputation because of indolent, sensitive, painful ulcerations can often be saved if the pain factor is eliminated for a sufficient length of time to give conservative procedures a chance to take effect. It should never be necessary to amputate an extremity unless it is hopelessly gangrenous or unless intervening sepsis threatens the life of the patient. Pain in the lower legs and feet secondary to obliterative vascular disease can be relieved by alcohol injection of peripheral nerves. This can be accomplished without paralysis of any important muscles of the leg or foot. Careful operative technic and scrupulous asepsis are essential to success. A serious slough may be precipitated by spilling alcohol into the tissues. Incisions should be made above the lower third of the leg and should be vertical by preference. They usually heal by first intention. Depending on the length of nerve trunk injected, the anesthesia produced may last but a few months or may be permanent. After an extremity has been desensitized by this method they have noticed frequently that the foot becomes drier and warmer and that previous color changes are eliminated. The surface temperature may rise 5 degrees F. This is probably due to elimination of sympathetic stimulation both by relieving pain and by interrupting the course of the nerve fibers to their peripheral destinations. The majority of the sympathetic nerves course peripherally with the sensory nerves. The result is much more apt to be successful if the popliteal artery pulsates. In cases of senile arteriosclerosis with arterial obliteration above the popliteal vessel, this procedure, even if done in two or three stages, may precipitate actual gangrene and hasten amputation. They feel, however, that, in such a case if amputation is necessary anyway because of pain, one is justified in desensitizing the extremity first. After an extremity has been desensitized, ulcerations that previously resisted all methods of treatment will frequently heal.

Treatment of Irreducible Intussusceptions in Children.—Two young children with definite irreducible intussusceptions were successfully treated by Montgomery and Mussil by fixing the irreducible part in position by a row of silk sutures placed about the neck and short circuiting this obstructed portion by a local anastomosis. The rationale of this method of treating irreducible intussusceptions would seem to be supported by the results of experimental work done on dogs.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

53: 99-266 (July) 1930

*Structural Basis of Traumatic Epilepsy and Results of Radical Operation. O. Foerster and W. Penfield.—p. 99.
Anterior Cerebral Artery and Syndromes. M. Critchley.—p. 120.
Theoretical Application to Neurologic Problems of Properties of Excitation Waves Which Move in Closed Circuits. L. S. Kubie.—p. 166.
Influence of Efferent Cerebral Pathways on Sympathetic Nervous System. O. R. Langworthy and C. P. Richter.—p. 178.
*Clinical Study of Tumors Involving Occipital Lobe. I. M. Allen.—p. 194.
Nervous and Mental Phenomena Associated with Paroxysmal Tachycardia. F. P. Moersch.—p. 244.

Structural Basis of Traumatic Epilepsy and Results of Radical Operation.—Twelve cases reported by Foerster and Penfield provide an opportunity for studying the result of the excision of cerebral cicatrix in epileptic patients and the mechanism involved. The gunshot wounds of the brain were of long duration and the birth injuries of still longer. Consequently the excised tissue offered a remarkable opportunity to study the late results of cerebral trauma histologically. In each of the twelve cases there was displacement of one or all of the ventricles toward the side of the lesion. In most of the cases there was some degree of enlargement of the ventricle on the side of the lesion. In the two cases of birth injury the enlargement was enormous. That the local atrophy is not the cause of the deflection of the ventricles toward the site of the lesion is shown by the fact that the wandering of the ventricles is not greater in those cases in which the atrophy is great. Likewise cases of cerebral thrombosis do not show this ventricular displacement and many cases with little or no enlargement of the lateral ventricle may show quite marked ventricular displacement. Instead of wandering of the ventricles, the process is really brain pull or ventricle pull. It seems evident that cicatricial contraction is responsible for the displacement of the ventricles in these human cases, as has already been demonstrated experimentally. Histologic examination of this human material provides eloquent evidence of a long-continued cicatricial traction. There was always fibrous tissue, especially near the surface, and adhesion to the meninges. Thus connective tissue and an astonishingly rich plexus of vessels were invariably present in the scars, intermingled with fibrous astrocytes whose fibers were in general arranged in parallel and extended in the direction of the obvious traction; that is, upward toward the cicatrix. Deeper down in the brain the astrocytes and blood vessels still continue to form the only framework capable of withstanding tension, the vaso-astral framework. In the areas of gliosis, nerve fibers are rare and nerve cells still rarer. Occasionally localized areas are found in which there are groups of phagocytes containing pigment. Such patches are evidently in the vicinity of blood vessels which have been shut off and they seem to indicate that the process of cerebral destruction is a long-continued one as they were present twelve and fourteen years after the initial wound. These areas recall the focal perivascular destruction described by Spielmeyer in epilepsy of a different type. The most extreme degree of progressive scarring is seen in the two cases of birth injury, both of which were of nineteen years' standing. In these cases the process of connective tissue invasion and fibrillation of neuroglia had gone to such a point that there were tubes and sheets of neuroglia surrounded by connective tissue sheaths. Even when local atrophy and destruction had given rise to the presence of cysts there was always to be found also an area of gray, gelatinous fibrous tissue, the center or the focus of concentric traction. One further convincing evidence of the physical pull which these scars exert is the fact that in one of these cases reported and in a number of others observed by the authors there was a definite pulling in of the scar which was noted as soon as the bone was removed and the edges of the adherent dura incised. The center of the scar thus drew itself together, sucking the attached dura inward as much as 1.5 cm. as soon as it was freed from the attachment to the overlying skull. In the twelve cases the time between the wound and the onset of convulsion varies between five months and fourteen years, the average period of immunity before the onset of attacks being five years and six months. The acute effect of the injury must have disappeared long before the end of the fifth year. There remains, however, one process progressive through all these years, and that is the cicatricial contraction which gradually draws one or both hemispheres toward the lesion. The authors show that at operation the focal epileptic attacks may often be produced in two ways: either by electrical stimulation of the brain in the neighborhood of the wound, or by gently pulling on the adherent dura. The latter fact may be of considerable significance, for if increase of a preexisting strain produces an attack it may well be that the preexisting strain itself is an important factor in the etiology of spontaneous convulsions. It is pointed out that the blood vessels form in one sense the woof of the contracting network. Traction, therefore, on the vessels must be inevitable. The hypothesis at once suggests itself that a vasomotor reflex secondary to this traction is responsible for the initiation of the convulsive seizures.

Study of Tumors Involving Occipital Lobe.—The clinical features of forty cases of tumor of the occipital lobe are reviewed by Allen, and their frequency, pathogenesis and significance discussed. The initial symptoms were epileptiform attacks in 30 per cent, a visual aura or visual hallucinations in 12.5 per cent, general mental impairment in 17 per cent, headache in 35 per cent, transient or progressive failure of vision in 15 per cent, and strabismus in 2.5 per cent. In only 12.5 per cent did the initial symptoms suggest that the visual paths were involved. The relative frequency of different symptoms of tumor of the occipital lobe was: visual hallucinations, 25 per cent; symptoms suggesting abnormality of the visual fields, 16 per cent; epileptiform attacks, 52.5 per cent; auditory hallucinations, 5 per cent; abnormal tastes and smells, 12.5 per cent; headache, 95 per cent; diplopia, 22 per cent; impairment of vision, 57 per cent; disturbances of speech, 35 per cent; spontaneous subjective sensations, 30 per cent; disturbances of motor functions, 52 per cent; and mental symptoms, 55 per cent. Important conditions found on examination of the patient were: mental changes, 60 per cent; contralateral homonymous defects of the visual fields, 94 per cent; papilledema or optic atrophy, 70 per cent; inequality of the pupils, 35 per cent (contralateral pupil the larger in 25 per cent); ocular pareses, usually of the external recti, 30 per cent; nystagmus and nystagmoid jerkings, 35 per cent; disturbances of speech functions, 30 per cent (50 per cent of left-sided tumors); disturbances of sensation of the suprathalamic type, 55 per cent; and minor degrees of motor disturbance usually in the contralateral limbs, 90 per cent. The changes in the visual fields found in the majority of cases occurred only in the contralateral halves of the fields. In individual cases the visual fields showed: (*a*) complete hemianopia up to the fixation point; (*b*) incomplete hemianopia with spacing of the field for central vision; (*c*) quadrantic defects; (*d*) peripheral crescentic defects, and (*e*) no abnormal changes. When vision was failing, a concentric contraction of the visual fields was sometimes found added to the foregoing variations. In the majority of cases, symptoms of increased intracranial pressure dominated the clinical picture from the beginning; in a few, epileptiform attacks occurred for some time; and in others there was a history of exacerbations of increased intracranial pressure for as long as two years.

British Medical Journal, London

2: 273-308 (Aug. 23) 1930

*Use of Radon Seeds in Treatment of Carcinoma. H. S. Souttar.—p. 273.
Thrombo-Angiitis Obliterans in Non-Hebrew Subjects (Three Cases): Case of Chronic Ulcus Cruris in Young Man. F. P. Weber, H. Rast and O. Lutterotti.—p. 279.
*Pernicious Anemia and Blood Transfusion. C. S. D. Don.—p. 280.
*Acute Lymphocytic Leukemia. R. M. Pearce.—p. 282.
Hemorrhagic Nonpustular Smallpox. A. Cannon and S. W. Phoon.—p. 283.
Basic Blood Pressure in Raynaud's Disease. G. A. Stephens.—p. 284.
Sauerbruch-Herrmannsdorfer-Gerson Diet. C. Watson.—p. 284.
Meningitis in Breast-Fed Baby. D. M. Alcock.—p. 285.

Use of Radon Seeds in Treatment of Carcinoma.—Eighty-five cases have been treated with radium by Souttar. Of eleven skin cases the tumor has disappeared in all, and there has been no recurrence, local or otherwise, after periods extending up to seventeen months. In the lip cases in every instance there was a rapid local response, and three out of the five patients have remained well for six, thirteen and fifteen months. The one fatal case was untreatable when first seen.

The tongue cases were all advanced cases, untreatable by any other method. In every instance, however, there was a rapid local response, with, in every case but one, a total disappearance of the primary tumor. In the four cases in which the glands were treated by radium, they responded at once. In five of the seven cases distant secondary deposits appeared, and in only one was there any possibility of a permanent cure. This also was, however, a totally inoperable case. The six mouth cases were all entirely inoperable, five of a very advanced and extensive nature. In the only case in which the growth was limited, although surgically inoperable, there has been no recurrence after two years. In four of the other cases the local growth disappeared but recurred later. Twenty-four breast cases are classed as early, advanced but operable, and inoperable. Of the eleven patients in the first group all but one have been followed to date, and these all remain free from recurrence at periods of from six to twelve months. The twenty-six cases of carcinoma of the esophagus show beyond question that in a large proportion of cases swallowing can be achieved by means of radium, giving relief for periods up to fourteen months.

Pernicious Anemia and Blood Transfusion.—Don asserts that severe cases of pernicious anemia with an elevated temperature often respond well to a blood transfusion, and in some cases it is probably a life-saving measure. Improvement takes place more quickly if arsenic is prescribed for patients who are under liver treatment. It is safer not to rely entirely on liver extracts. Whole liver should always be included in the diet in every case of pernicious anemia.

Acute Lymphocytic Leukemia.—Pearce reports a case in a girl, aged 8, in which recovery ensued after intramuscular injections of hog spleen.

Journal of College of Surgeons of Australasia, Sydney

3: 1-148 (July) 1930

Congenitally Dilated Colon or Hirschsprung's Disease. R. B. Wade. —p. 3.
*Right-Sided Visceroptosis. J. C. Hemsley.—p. 20.
Fractures and Principles. R. H. Russell.—p. 32.
*Consideration of Mortality of Acute Appendicitis: 239 Fatalities. C. J. Miller.—p. 40.
Physical and Biologic Concepts in Science. F. W. Jones.—p. 56.
*Royle's Operation of Sympathetic Ramisection. H. R. G. Poate.—p. 66.
Roentgen Diagnosis of Cerebral Tumors. M. Saito.—p. 71.
Gynecologic Electrosurgery with High Frequency Currents. R. Fowler. —p. 75.
Surgical Sculpturing (Plastic Surgery for Lipomatosis). H. O. Bames. —p. 104.
Hernia. T. E. L. Lambert.—p. 110.
Formation of Artificial Vagina from Rectum. R. Felstead.—p. 112.
Errors in Development of Peritoneum and Foramen of Winslow. E. Hughes-Jones.—p. 114.
Surgical Importance of Inflammation in Fat Tissue. E. S. J. King. —p. 116.
Acute Tuberculosis of Breast. A. E. Moore and D. Robb.—p. 121.
Phlegmonous Gastritis. D. Robb.—p. 122.

Right-Sided Visceroptosis.—Fifty-one cases are analyzed by Hemsley. He concludes that right-sided visceroptosis is due to the persistence of the embryonic mesentery of the ascending colon. The degree of ptosis depends on the shape of the patient's abdomen, the length of the mesentery and the presence of abnormal bands and membranes. The symptoms are caused by traction on the mesenteries and stimulation of the sympathetic nerves, resulting in inhibition of the normal intestinal movements. Traction may be so concentrated by abnormal bands or membranes as to cause local injury to organs by interference with their vascular, lymphatic and nerve supplies. Waugh's colopexy or some modification of it gives satisfactory results in the treatment of right-sided ptosis. Early recognition and treatment of this condition will prevent the development of many serious abdominal lesions.

Mortality of Acute Appendicitis.—Miller's review of the causes of mortality in appendicitis shows that more than 200 of the 239 patients discussed died primarily from peritonitis or sepsis or toxemia or from a combination of the three conditions. The majority of the remainder died from functional disease on which appendical disease was superimposed, cardiorenal complications being particularly important factors in patients over 50. No matter what the actual cause of death, however, the fact remains that it was appendical disease or, rather, the toxemia and sepsis and peritonitis of advanced appendical disease, which was responsible, directly or indirectly, for the fatal outcome. Death occurred with a fair degree of promptness; 18.3 per cent of all the patients who succumbed died within twenty-four hours and only 28.4 per cent of them were alive at the end of five days. As to mortality in relation to anesthesia, with local anesthesia the death rate was 46.4 per cent; with spinal anesthesia, 17 per cent, and with general anesthesia, 7.9 per cent. Miller concludes: The major factor in the mortality of appendicitis is the mortality of delay, and only by the reduction of the interval between the onset of the symptoms and the institution of surgical relief can that mortality be brought within reasonable limits. A certain percentage of the patients operated on within twelve hours or even within twenty-four hours will inevitably die, for appendicitis is sometimes so virulent from its inception that no mortal hand can stay its course, while some surgical accidents are bound to occur which no amount of care or skill can avert. But the majority, the overwhelming majority of early cases of appendicitis, will go on to recovery, and uncomplicated recovery at that, and what the outcome will be in any given instance rests not in the lap of the gods but on the promptness with which the patient seeks relief and the surgeon offers it. Other considerations cannot be ignored, but no other one really matters.

Royle's Operation of Sympathetic Ramisection.—Poate defends the value of this operation on the basis of twenty personal cases and examination of many of Royle's patients. He says: Spasticity following definite cortical injury gives the best results. The final selection of patients for operation should be left in the hands of those experienced in the operation and its results. The operation should not be undertaken by a surgeon who has not had an opportunity of being instructed by a competent authority. Operation is inadvisable unless facilities for a prolonged course of reeducative after-treatment are conveniently at hand. In borderline cases in which it is difficult to predict any definite improvement, it is as a rule worth while for the patients to undergo operation. Some pleasing surprises have occurred and in any case no harm can result to the individual. Patients whose mentality has been grossly interfered with and who cannot cooperate in the after-treatment are better left alone. The definite presence of excessive tone is usually (but not always) the best indication of a satisfactory result by operation. It is at times noticeable in patients with more than one limb affected that, when one limb has reacted favorably to operation, improvement in the other limb follows to some extent. The question of the economic value of the individual before and after operation is difficult to determine, but in certainly 50 per cent of cases the patients are made more useful members of the community after operation. In many patients, relief from obstinate constipation has been noted. Some of the patients had suffered severely from chilblains and other vascular disturbances which completely cleared after operation.

Japanese Journal Experimental Medicine, Tokyo

8: 309-414 (Aug.) 1930

*Virus of Tsutsugamushi Disease and Demonstration by New Method. Mataro Nagayo, Takeo Tamiya, Tokushiro Mitamura and Kiyoshi Sato.—p. 309.
*Virus of Typhus Fever. Mataro Nagayo, Takeo Tamiya, Tokushiro Mitamura and Hikozaemon Hazato.—p. 319.
Prevention of Epidemic Diseases Due to Aquatic Products. Yuzo Tohyama.—p. 327.
Numerical Variation and Surviving Period of Vibrio Cholerae Placed on Aquatic Food Preparations. S. Tetsumoto.—p. 353.
Immunologic Studies on Bacterial Substances Isolated from B. Typhosus and B. Paratyphosus. Kamekichi Nagase.—p. 365.
Immunologic Studies on Bacterial Substances Isolated from Dysentery Bacilli. Kamekichi Nagase.—p. 371.
Haemotoxin of Bacteria. Kamekichi Nagase.—p. 379.
Experimental Studies of Monocytes. Y. Honda.—p. 391.
Critical Study of Adler and Reimann's Functional Test of Reticulo-Endothelial System. Yoshiharu Takeda.—p. 399.

Virus of Tsutsugamushi Disease and Demonstration by New Method.—By inoculation of the virus into the anterior chamber of the eye of rabbits, Nagayo et al. produced a characteristic eye symptom that can be faithfully transmitted to generations of rabbits by inoculations into the eye chamber of the infected aqueous humor. These eye symptoms they were able to demonstrate through histologic examination, immunologic relations and monkey inoculations to be specific inflamma-

Exanthematous Fever and Weil-Felix Reaction.—In a number of cases of exanthematous fever Plazy reports that only two of the patients showed the characteristic little scab at the point of inoculation. Both of the patients were sailors who owned dogs infested with ticks. The other patients were men on duty where regulations forbade dogs. These patients showed clinical histories and serum reactions comparable to those of the first two patients. Facts tend to show that exanthematous fever may be caused by some carrier other than the dog tick—a carrier that leaves no trace at the inoculation point, which would account for the absence of a scab in patients not on land duty. The Weil-Felix reaction was almost constantly positive in these cases.

38: 1057-1072 (Aug. 6) 1930

*Gastro-Enterostomy or Extensive Gastropylorectomy for Gastroduodenal Ulcers? N. Hortolomei.—p. 1057.
Bone Sensitivity. R. Leriche.—p. 1059.
Malignant Tuberculous Purulent Pleurisy: Treatment. A. Pissavy.—p. 1060.
*Autoserotherapy in Chronic Rheumatism. P. le Floch.—p. 1061.

Gastro-Enterostomy or Gastropylorectomy for Gastroduodenal Ulcers?—Gastro-enterostomy is often followed by serious complications, and by death, either immediate or remote. In the 174 patients with gastroduodenal ulcer thus treated by Hortolomei from 1920 to 1926, 13.7 per cent died. Since 1926 the author has employed extensive gastropylorectomy. Of the ninety patients who underwent this operation, only 6.6 per cent died. Three of the deaths were due to postoperative pulmonary complications. After the adoption of spinal anesthesia associated with local anesthesia instead of a general anesthesia, there were no more cases with pulmonary complications. Not only was the mortality lower with gastropylorectomy but the good results of the operation were maintained; the patients gained weight, digested their food well and did not need a special diet, and in no case did any patient experience persistent intestinal disorders.

Autoserotherapy in Chronic Rheumatism.—After having employed numerous methods of treatment for chronic rheumatismal diseases, le Floch finds that autoserotherapy can be used effectively when other treatments fail. This is especially true when the etiology of the disorder is not clear. Moreover, it seems to reinforce the action of adjuvant remedies. Cases in which it gives the best results are those with mononucleosis, or at least with absence of polynucleosis; however, this does not at all prevent its being used in other cases. It has the advantage of being easily applied and of being within reach of all physicians.

38: 1073-1088 (Aug. 9) 1930

Cerebral Circulation: Methods of Observation and Comparison of Technics. Riser and R. Sorel.—p. 1073.
*Morphine Glycemia Test in Suprarenal Insufficiency. R. Targowla.—p. 1077.
Exotic Dengue: Four Cases. Aubin.—p. 1078.

Morphine Glycemia Test in Suprarenal Insufficiency: Value.—Targowla states that a negative morphine glycemia test (slight or no hyperglycemia) constitutes a sign of suprarenal insufficiency when there is no important thyroid insufficiency. In various rare cases, however, the absence of the reaction may be due only to neurosympathetic inexcitability. The inversion of the reaction phenomenon (decrease of glycemia) does not seem to depend on a suprarenal factor. As to the exaggeration of morphine hyperglycemia, it cannot be validly applied to the clinical diagnosis of a suprarenal hyperfunctioning in the present state of the problem.

38: 1089-1104 (Aug. 13) 1930

Bilateral Congenital Dysmorphosis of Wrists by Radial Epiphyseal Hemiatrophy. H. L. Rocher and G. Roudil.—p. 1089.
Lipoids and Anaphylactic States: New Method of Inducing Antianaphylaxis. R. Mercier.—p. 1091.
*Dilatation of Right Pupil as Objective Symptom of Chronic Appendicitis. P. J. Buchmann.—p. 1094.

Dilatation of Right Pupil as Symptom of Chronic Appendicitis.—Buchmann shows, through his observations of 3,500 cases of chronic appendicitis, that dilatation of the right pupil is a trustworthy objective symptom. In one series of tests 88 per cent of the cases showed dilatation of the right pupil, 6 per cent dilatation of the left pupil and in 6 per cent there was no perceptible difference between the two pupils. In a second series, 93 per cent showed dilatation of the right pupil, 5 per cent dilatation of the left pupil and in 2 per cent there was no difference between the two. He explains this observation as follows: The dilatation of the right pupil arises from a hypergenesis of the filaments of the sympathetic nervous system in the wall of the appendix, which extends upward through the main branches of the system to the pupil. Since the appendix is the only abdominal organ possessing a well developed system of sympathetic nerves, the irritation is a definite indication of appendicitis. The few cases in which dilatation occurs in the left pupil instead of the right are due to variations in the course *of the trunks of the sympathetic nervous system* below the tenth dorsal segment, which cause dilatation of the opposite pupil. As a further proof of the symptom of anisocoria the dilatation disappears and the pupil becomes normal in from two and a half to seven months after appendectomy is performed.

38: 1105-1120 (Aug. 16) 1930

*Utility of Measuring Venous Pressure in Artificial Pneumothorax. P. G. Bosviel.—p. 1105.
Deafness Due to Tympanosclerosis: Present Treatment. G. de Parrel.—p. 1108.
Nodular Exanthematous Fever. D. Olmer.—p. 1110.

Venous Pressure in Artificial Pneumothorax.—The value of measuring the venous pressure in the course of artificial pneumothorax lies in its disclosure of cardiovascular disturbances. In general the heart withstands unilateral or even bilateral pulmonary collapse remarkably well and in the majority *of cases there is no modification of the arterial or the* venous pressure. Bosviel finds that measurement of the venous pressure reveals an unsuspected cardiac compression more clearly than does the measurement of the arterial pressure, besides furnishing more exact data on the ability of the heart to support pulmonary collapse.

38: 1121-1136 (Aug. 20) 1930

*Fatal Subacute Form of Primary Tuberculous Pericarditis with Effusion in Adults. V. Audibert and J. Olmer.—p. 1121.
Acute Appendicitis Following Labor. J. Marmasse.—p. 1122.
*Treatment of Hay-Fever by Suggestion. B. de Rachewsky.—p. 1124.
Hypocalcemia in Myotonic Dystrophy with Cataract. A. Jung.—p. 1125.

Primary Tuberculous Pericarditis with Effusion in Adults.—Audibert and Olmer give the clinical history of the *subacute fatal form of primary tuberculous* pericarditis with effusion, in an adult, a disease which they believe to be more frequent than is commonly thought. A patient with no apparent previous infection feels his vitality declining, becomes weak, loses his appetite and begins to notice dyspnea both day and night when in repose. After a few weeks the dyspnea increases almost to the point of suffocation and does not yield to cardiac tonics; however, there is little pain and no paroxysmal attacks occur. Fever of 38 C. (100.4 F.) or 39 C. (102.2 F.) is constant. The patient is very weak and shows a whitish pallor of the face and skin with slight puffiness of the tissues. The face is wrinkled and assumes a permanent expression of discomfort and painful resignation. There is some irregularity of the heart action, the liver is enlarged and somewhat painful, and the urinary system is always deficient. There is little coughing or expectoration. The only clinical indication in any way pathognomonic is the fact that the cardiac area is greatly enlarged, which is determined by percussion. This suggests roentgen examination, which gives proof of effusion and necessitates immediate puncture of the pericardium, which gives temporary relief from the dyspnea. The liquid thus withdrawn is always abundant, sometimes slightly greenish, often bloody; rich in albumin and lymphocytes it gives a positive Revalta reaction; it causes tuberculosis in guinea-pigs. The liquid reforms rapidly, necessitating frequent punctures of the pericardium. As the disease evolves, the dyspnea, weakness and fever grow worse and other tuberculous localizations, especially pleurisy, often appear. The entire course of the disease rarely exceeds from six to eight months and is always fatal. The most striking feature revealed by necropsy is the marked involvement of the entire pericardium. It contains a greenish liquid; the internal surface is irregular and covered with false membranes, parts of which are floating in the liquid. Between the visceral and parietal portions is a quantity of fibrin which gives a spongy appearance. There are no adhesions between the two portions. The only macroscopic lesions are a few rare granulations on the parietal portion. The pleura always shows abundant effusion. There are no pulmonary tuberculous lesions. The liver, always enlarged, resembles a cirrhotic liver. Pathogenically the disease is not primary as designated but is the result of an earlier, undetected tuberculous infection, which because of its general extent in the pericardium produces this fatal form. Although the syndrome is similar to that of asystole from primary myocarditis, the latter disease can always be distinguished because in it dyspnea is relieved by rest and diet and the patient is then soothed and regains his appetite. Because of the extent of the infection in the pericardium and the subacute evolution of the disease, the writers feel that no treatment can be more than palliative; at least a cure has as yet not been discovered.

Treatment of Hay-Fever by Suggestion.—De Rachewsky maintains that hay-fever can be cured by suggestion and that the effect of pollen is a delusion analogous to belief in the contagiousness of warts. At first he used small doses of morphine or codeine along with treatment by suggestion in order to relieve inflammation of the mucosa and to lower the nervous tension of the patient, just as common colds may be cured with morphine. For several years, however, he has been using suggestion without the aid of morphine, with equal success. A number of cases are cited, extending over a period of thirty years, in several of which the patient was cured by suggestion alone. The real remedy, he insists, is firm belief in the harmlessness of pollen, armed with which belief one can go into the fields without fear of sneezing. The strong psychic element in the disease is confirmed by analogy with other periodic conditions, as gastro-intestinal disturbances and attacks of depression; also by the fact that hay-fever is never observed in children under 8 years of age.

Revue Française de Gynécologie et d'Obst., Paris

25: 449-496 (July) 1930

*Test of Labor Before Cesarean Section in Cases of Contracted Pelvis. M. Brouha.—p. 449.

Methods for Overcoming Cervical Resistance in Labor. A. van Cauwenberghe.—p. 468.

Vulvar Ulcer with Vincent's Fusospirillary Infection. F. Chatillon.—p. 473.

*Extra-Uterine Pregnancy at Term: Diagnosis and Treatment. J. Hébert.—p. 475.

Test of Labor Before Cesarean Section in Cases of Contracted Pelvis.—Brouha maintains that, in a large proportion of cases of contracted pelvis, cesarean section can be avoided by using the test of labor to give every opportunity for natural delivery before resorting to surgical intervention. Observation was made of a hundred parturients with a conjugata vera ranging from 8 to 9.5 cm. The patients were kept under strict surveillance from the moment of the rupture of the bag of waters; notes were taken every hour, or even every half hour. When the uterus began to contract spasmodically, morphine was administered to relieve the pain and to reestablish the normal rhythm of contraction. In the 94 cases under consideration (6 of the 100 patients mentioned had a conjugata vera of 10 cm.), 61 (or 63 per cent) had a normal delivery and 33 (37 per cent) required cesarean operation. There were no deaths among the mothers. Four infants died; one of the deaths could have been avoided by closer observation. In general, natural delivery was more frequent in cases in which the pelvis was larger and the child weighed less. The chief danger in employing the test of labor is that there are no definite indications to show just when cesarean intervention is necessary to avoid serious complications. The method should therefore be used only in obstetric clinics with a competent personnel. The duration of labor in the 94 cases ranged from seven hours to fifty-eight hours when operation was not performed and from six hours to fifty-one hours when cesarean section was done.

Extra-Uterine Pregnancy at Term: Diagnosis and Treatment.—Hébert gives the history of a case of extra-uterine pregnancy in a woman, aged 36 (no previous illnesses, normal menstruation from the age of 13, first normal pregnancy at the age of 24, several successive normal pregnancies). At her first visit to the hospital in the fifth month of pregnancy the diagnosis was uterine pregnancy with a fibroma at the right. There were two separate growths on the left and right sides, the left one of the consistency of a gravid uterus, the right one firmer. The mass on the left grew steadily larger. The sounds of the fetal heart were heard at the left. In the ninth month the fetal movements ceased. The condition of the patient grew serious and she had a slightly fetid, brownish metrorrhagia and a temperature of 40 C. (104 F.). Manual dilation of the uterus under spinal anesthesia showed a small uterus slightly enlarged; the abdominal pregnancy extended from the upper left portion of the abdominal cavity down into the vesico-uterine culdesac; the mass at the right was also independent of the uterus. A median incision extending from the pubis to above the umbilicus was then made. A gestation sac occupying the entire abdomen was easily exteriorized, revealing first the left part of the tumor the size of a gravid uterus, of violet color, tense, tympanic, free, and surrounded by translucent membranes that allowed the fetus to be observed, and second, the right mass, of a more reddish color, adhering to the rectovesical fascia. The gestation sac was in front of the uterus, which was slightly enlarged. The sac was opened outside the abdomen and a macerated fetus extracted, which was surrounded by an extremely fetid, greenish liquid. The placenta occupied the right part of the tumor and was easily separated. The free part of the sac was removed but not the attached portion where the placenta was inserted. In a few days the patient showed normal temperature, the absorption of the exteriorized mass took place slowly, and within two months after the operation the patient left the hospital cured. In general, the only pathognomonic symptom of extra-uterine pregnancy is the sensation of a small uterus at the side of the ectopic mass. An infallible test, however, may be made by roentgen examination. Sometimes at term a false labor appears with expulsion of the decidua; the fetus dies. If this is determined correctly, a diagnosis of extra-uterine pregnancy can safely be made. After term, any pregnancy prolonged several weeks or months is undoubtedly ectopic. The size of the abdomen is reduced and the fetus begins to dry up and harden. In extra-uterine pregnancy, if the fetus is alive, it is better to wait until term for delivery. If the fetus is dead, operation should be performed about six weeks after the death of the fetus, unless danger of infection necessitates earlier intervention. In operating, a median incision above and below the umbilicus is used. The tumor is exteriorized as well as possible. The placenta is usually left in the abdomen if the fetus is alive, because of the danger of hemorrhage. Marsupialization is often used, with success, especially if the fetus is dead. Most surgeons do not attempt to remove the sac.

Revue Française de Pédiatrie, Paris

6: 425-591, 1930

Creatinuria and Carbonuria. L. Garot.—p. 425.

*Leukocytes in Blood of Children. M. Erlich.—p. 475.

Antituberculosis Vaccination with B C G. R. Chaussinand.—p. 496.

Leukocytes in Blood of Children.—Erlich examined the blood of about 500 children, ranging in age from 1 day to 14 years, in order to determine the pathologic modifications of the leukocytes in various diseases. Leukocytosis, deviation to the left and toxic changes in the cells were found to be more or less important symptoms in the diagnosis of septicemia, erysipelas, pneumonia, ulcerative stomatitis, suppurative appendicitis (but not chronic or nonsuppurative), tuberculous meningitis, Heine-Medin disease, nontuberculous meningitis, purulent meningitis, typhoid, bacillary dysentery, acute colitis, scarlatina, measles, nontuberculous bronchial pneumonia (as distinguished from the tuberculous form), congenital and visceral syphilis, von Jaksch's anemia, pseudoleukemia, lymphosarcoma, granulomatosis, and severe alimentary intoxication. On the contrary, no modifications of any note were found in tuberculous pleurisy and peritonitis, and various forms of anemia.

Revue de Médecine, Paris

47: 571-656 (July) 1930

*Phrenicectomy: Mechanism of Action: Results. F. Dumarest, H. Mollard and R. Guiraud.—p. 571.

*Arterial Tension in Pulmonary Tuberculosis: Its Relation to Activity of Lesions. E. Leuret and J. Caussimon.—p. 586.

Traction Dextrocardia in Right Pleuropulmonary Lesions. F. Trémolières and G. Méuillet.—p. 595

Pulmonary Diseases and Tuberculous Infection in 1929. G. Caussade and A. Tardieu.—p. 616.

Phrenicectomy: Mechanism of Action: Results.—In 120 cases of pulmonary tuberculosis with exeresis of the phrenic nerve, 65 showed no improvement either immediate or remote;

within the first few weeks 35 showed rapid and lasting amelioration; in 10 cases there was a belated improvement, while 10 others showed transitory improvement. Dumarest et al. endeavor to explain the discrepancy between the anatomic and clinical results of phrenicectomy as well as the variability in the clinical results. A parallel variability in the mechanism of action of the phrenicectomy must account for the latter phenomenon. The authors find that permanent amelioration depends on the associations of two kinds of factors: on ascension-resistance factors if the improvement is immediate, on immobilization-retractility factors if it is remote. The disappearance of any one of the factors accounts then for transitory amelioration. In all cases the efficacy of phrenicectomy depends to a large degree on the patient—whether he presents a tendency to fibrous tissue formation and whether the lesions have any power of retraction. Left phrenicectomy gives better results than right phrenicectomy.

Arterial Tension in Pulmonary Tuberculosis.—In the opinion of Leuret and Caussimon, hypotension is not an absolute rule in pulmonary tuberculosis. It is not necessarily the accompaniment of serious forms. Inversely, forms of pulmonary tuberculosis of serious prognosis may offer normal or quasi-normal arterial tension. The study of arterial tension scarcely permits a classification of patients according to the degree of activity of their lesions. Sometimes the figures of the tension contradict the clinical record; sometimes the differences between the various measurements are slight compared with the much varied clinical gradations. On the contrary, the systematic study of arterial tension in one patient will permit observation, to a certain extent, of the evolution of the lesions. It must be remembered that in cases of pulmonary tuberculosis the circulatory function maintains its equilibrium over a long period of time in spite of numerous causes of alterations. There exists, therefore, an important period during which the tension remains normal or is slightly lowered without being influenced by clinical nuances then observable. When the lesions become active and in process of evolution, there is a period of reaction during which the tension, the oscillometric index and the maximum-minimum coefficient rise. Then comes a period in which the organism yields to the disease. The index falls, the oscillometric curve tends toward the horizontal, the maximum and the minimum approach, and the systolic coefficient tends toward unity.

Revue d'Orthopédie, etc., Paris

17: 301-396 (July) 1930

*Tuberculosis of Calcaneus in Children. F. Pouzet.—p. 301.
Spontaneous Backward Subluxation of Hip. A. Mouchet and P. Bufnoir.—p. 313.
Tuberculous Origin of Tarsal Scaphoiditis. A. Aimes and H. Estor.—p. 319.
Lesions of Serous Bursae of Knee. M. le Bourgo.—p. 327.
*Syphilitic Osteoperiostitis Mistaken for Schlatter's Disease. A. Lupen and S. Janu.—p. 334.
Progressive Spontaneous Divergent Luxation of Elbow Following Fracture of Head of Radius. R. Charry.—p. 338.
Complete Left Subastragalar Dislocation. A. Delahaye.—p. 342.
Simple Method for Correct Construction of Paster Beds. A. D. Radulesco.—p. 346.

Tuberculosis of Calcaneus in Children. — Pouzet discusses twenty-four cases of tuberculous osteitis in young children, a few of whom were less than 6 years of age; the greater number comprised children between 9 and 11 years. The disease was found more frequently in girls than in boys. In some cases there were associated lesions. In twenty cases there were abscesses, twelve of which had previously become fistulous. The patients were treated by a thorough curettage following immobilization in a plaster cast. Complete cicatrization resulted in from four to ten months. Fistulous abscesses were slower in healing than intact ones. Patients treated by complete curettage of the calcaneus recovered as quickly as those treated by partial curettage. The author emphasizes the importance of an early operation and of a complete, thorough curettage. Practically complete conservation of the normal form of the calcaneus and of the subastragalar movements resulted from curettage in the cases of osteitis of the calcaneus in the older group of children.

Syphilitic Osteoperiostitis Mistaken for Schlatter's Disease.—A case, which from the roentgenogram had been interpreted as Schlatter's disease, was in reality syphilitic osteoperiostitis at the level of the head of both tibias. There was a localized gumma with local symptoms of hereditary syphilis. The Bordet-Wassermann reaction was strongly positive. Lupen and Janu administered antisyphilitic treatment and the patient improved notably after the first series of injections.

Revue Médicale de la Suisse Romande, Lausanne

50: 497-560 (July 25) 1930

*Azotemia Without Renal Lesions. M. Roch.—p. 497.
Tuberculous Primary Infection in Children and B C G Vaccine. Jaquerod.—p. 523.

Azotemia Without Renal Lesions.—In a study of azotemia without renal lesions, Roch affirms that a laboratory examination has no more absolute value than the attestation of any clinical symptom. Both must be interpreted and confronted with all available information. He demonstrates that gross errors may follow if an increase in the amount of blood urea is invariably interpreted as a nephritis. A large number of varying causes may bring on azotemia due to insufficient elimination of urea (nervous cause, of reflex origin, suprarenal azotemia, azotemia due to asystole, to oliguria, and to chloride deficiency). Azotemia may also be due to overeating and to an increased production of urea (inanition; traumatic, postoperative, and athreptic azotemia; azotemia due to hemolysis, roentgen therapy, infectious diseases, influenza, pneumonia, typhoid, poisons; hyperhepatia and hepatonephritis). These conditions may be found singly or in association.

50: 561-624 (Aug. 25) 1930

*Use of Urinary Antiseptics. E. Jæggy.—p. 561.
Antidiphtheria Vaccination in Geneva. H. Audeoud.—p. 593.
Two Useful Formulas for Iodoform Medication in Tuberculosis. W. Francken.—p. 595.

Use of Urinary Antiseptics.—Jæggy first mentions the futility of urinary antiseptics in infections involving urinary stasis. Because of the metastatic character of many urinary infections the source of the disturbance, whether local or general, should always be considered in the treatment. The actual urinary acidity (p_H) should be ascertained daily by testing with phenolphthalein, neutral red and methyl red. The urinary p_H must be modified in either an acid or an alkaline direction according to the nature of the infection and the antiseptic to be used. Methenamine, for example, acts only in an acid medium. The value of urinary antiseptics, contrary to former opinion, does not correspond to their bactericidal power in vitro, as most of them have an entirely different action in a living organism. Methenamine alone acquires special bactericidal qualities in urine by liberating formaldehyde. Heavy metals, especially silver and gold, in colloidal form and complex salts are more efficacious than ionized metallic salts. *Methenamine, as mentioned, has a direct bactericidal effect* in an acid medium, especially valuable against colon bacilli. Arsphenamine is used in the treatment of syphilis, recurrent fever, malaria, tropical ulcers and other diseases; it is particularly efficacious in staphylococcal infections. Mercurochrome-220 soluble, although more powerful than any other antiseptic, is dangerous and should be used only in exceptional cases in which other remedies have failed.

Schweizerische medizinische Wochenschrift, Basel

60: 725-748 (Aug. 2) 1930

General Rules for Treatment of Syphilis. Naegeli.—p. 725.
*A Symptom of Heart Disease. A. Jarotzky.—p. 731.
Cancer of Thymus. M. Baer.—p. 732.
Clinical Studies on Edema. F. Wanner.—p. 736.
Oral Administration of Antistreptococcic Serum. F. Grote.—p. 739.

A Symptom of Heart Disease.—Jarotzky maintains that the circulatory organs, particularly the heart, depend largely on the condition of the entire muscular system. As proof of this he cites the mechanism of the circulation in certain marine mollusks. In these animals it can be observed that during every muscular contraction the blood is forced from one part of the body into another. But even in higher animals the muscular contractions exert a pressure on the veins and thus force the blood toward the center of circulation. The author thinks that a chronic disorder of the myocardium and of the coronary arteries may be caused by various injurious influences, one of them being the reduced action of the muscular system. In these cases the weakening of the muscular system is the primary cause, which is followed by cardiac degeneration; the heart is involved like all the other muscular organs. The author bases this theory on certain observations. In persons whom he had known for a long time he noted a marked change in the physiognomy. The expression of the face changed, the features lost their clear lines and the physiognomy was somewhat masklike. It appeared that the muscles of the face had lost their tonus. These changes in the physiognomy are different from those of an edematous character and also from those in aging persons. The symptom is noted in persons with full mental and physical vigor. It becomes manifest from three to five years before the clinical signs of cardiac degeneration. The significance of the symptom lies in the fact that it indicates the cardiac disorder in its early stage.

60: 769-788 (Aug. 16) 1930

Relation Between Certain Types of Personalities and Certain Forms of Psychosis. J. E. Staehelin.—p. 769.
*Pain Caused by Artificially Increased Pressure of Cerebrospinal Fluid: Its Diagnostic Value. A. Pometta.—p. 773.
Spurious Tuberculosis Provoked by Attenuated Virus of Calmette and Guérin. A. Comis.—p. 774.
Peptic Ulcer of Jejunum. P. Decker.—p. 775.
Ten Years of Practice in the Tropics. K. E. Surbek.—p. 778.

Pain Caused by Artificially Increased Pressure of Cerebrospinal Fluid.—The symptom described is based on the same principle as Queckenstedt's sign. When the veins in the neck are compressed, the pressure of the cerebrospinal fluid increases rapidly. The author reasoned that the increased pressure would cause pain at the point where a disease process is located. He describes his observations on one patient and he comes to the conclusion that by pressure on the veins of the neck it is possible to produce a pain wherever a pathologic process is located within the spinal canal or in its surroundings. The reaction sets in several minutes after an elastic tourniquet has been applied. The pain increases gradually and subsides again after the tourniquet is removed. Regarding the technic of the test, Pometta states that the tourniquet should be applied to the neck for not less than from five to eight minutes and the pressure should not be too great. He points out that only the positive reaction has diagnostic value. It is probable that not all pathologic symptoms will react to the test. But it might be helpful in such conditions as tabes, sciatica, tumors of the spine, coccygodynia and acroparesthesia. The test is contraindicated in severe hypertension, in case of cerebral processes, in arteriosclerosis and in acute meningitis.

Clinica Ostetrica, Rome

32: 385-448 (July) 1930

*Ovarian Reaction in Young Rat to Action of Urine of Pregnant Women. L. Molinengo.—p. 385.
Large Fibromyoma of Vagina. A. Pistuddi —p. 396.
Atresia of Vagina, Due to Foreign Body, Developed During Pregnancy and Discovered at Birth. A. Lazzeroni.—p. 404.
New Method of Protecting the Peritoneum in Abdominal Cesarean Section. F. Benedetti-Valentini.—p. 410.
Adherent Ovarian Cyst at Base of Uterus Diagnosed as Uterine Fibroma. A. Elia.—p. 417.

Ovarian Reaction in Young Rat to Action of Urine of Pregnant Women.—From his experiments Molinengo reaches the following conclusions: The degree of reaction of the ovary of the young rat to the action of the urine of a pregnant woman is, within strict limits, parallel to the dose of the injected substance. The possibility of securing with small doses of urine a follicular phase, and with heavy doses massive hyperluteinization of the ovary, awakens doubt as to the correctness of the principles on which Evans and Simpson base their theory in regard to the plurality of antehypophyseal hormones.

Pediatria, Naples

38: 753-808 (July 15) 1930

Significance of Cutaneous Reactivity and of Humoral Factor in Causation of Skin Reactions in the New-Born and in Nurslings. E. Schwarz—p. 753.
*The Lange Test Applied to Cerebrospinal Fluid in Children with Infantile Paralysis. F. Peola.—p. 767.
Meningitis Due to Bacillus Coli. A. Bardisian —p. 777.

The Lange Test in Children with Infantile Paralysis.—Peola concludes from her researches that the reaction curve of the colloidal gold test on the cerebrospinal fluid in infantile paralysis is, with few exceptions, fairly characteristic, showing usually deviation toward the left—namely, toward the zone of weaker dilution. The flocculation ranges in the first five or six test tubes from 1:10 to 1:160. It is not generally an intense reaction but rather moderate, almost never going beyond the "blue" and only occasionally reaching "clear blue" or "clear pink." The time of securing the fluid, at least in the first and second week, does not appear to have a demonstrable influence on the course of the curve or on the intensity of the reaction. Departing from normal are the cases in which clinically evident signs of intense meningeal reaction were demonstrable. In these cases the curve did not stop with the fifth to sixth test tube but continued to the seventh or eighth. In only one case was the colloidal gold test normal or, better, negative, while the clinical observations and the chemical and cytologic examination of the fluid resulted frankly positive. In the types of tuberculous meningitis, which the author lists in the table for the purpose of comparison, although the cases are too few to form a basis for any definite conclusions, the curves do not seem to demonstrate any point of contact with those of poliomyelitis. In the nonorganic diseases of the nervous system, in which the toxic factor intervenes, the reaction is in general frankly negative or close to normal. The curve of poliomyelitis resembles that of neurosyphilis, but the flocculation reaction is rather less marked in poliomyelitis than in neurosyphilis.

Policlinico, Rome

37: 1053-1092 (July 21) 1930. Practical Section

Antineoplastic Radiobiology. L. Capelli.—p. 1053.
*A Hydronephrotic Kidney Simulating an Ovarian Cyst. G. Conte.—p. 1057.
Suggested Change of Technic in Second Stage of Freyer Operation. G. Millul.—p. 1060.

A Hydronephrotic Kidney Awakening Suspicion of Ovarian Cyst.—Conte reports a case of hydronephrosis that defied diagnosis. He explains the error as due to the fact that no symptoms announced the appearance of the syndrome. The author seeks to clarify the pathogenesis by referring it to renal decompensation or to occlusion of the left ureter by a purulent coagulum. The patient, a woman, died eight days after the operation, from renal insufficiency.

37: 1093-1128 (July 28) 1930. Practical Section

Fixation Abscess. L. Tonelli.—p. 1093.
Treatment of Septic Disorders and Wounds. G. Forni.—p. 1096.
*Pellagra. E. Tarantelli.—p. 1097.

Pellagra.—Tarantelli reports a case of pellagra that in its genesis contrasts strangely with all the etiopathogenic factors that are at present invoked to explain the complex picture of this disease. On the basis of evident changes in the liver, he advances the hypothesis that a sensitization due to pigments and toxins produced by insufficiency of the liver may be the cause. He seeks to support his hypothesis by reference to etiologic factors invoked in other dermatoses of an allergic nature.

Riforma Medica, Naples

46: 874-956 (June 9) 1930

Rare Mycoses. I. Iacono.—p. 875.
*Echinococcus Cysts of Spleen: Treatment. E. Capecchi.—p. 878.
Antituberculosis Dispensaries. S. Damaggio.—p. 882.

Echinococcus Cysts of Spleen: Treatment.—Capecchi's personal experience, supported by the evidence of recent writers, induces him to conclude that the operation of choice for echinococcus cysts of the spleen is marsupialization, performed in one or two stages, depending on the case.

46: 957-995 (June 16) 1930

Asthenia. N. Pende.—p. 959.
*Behavior of Calcium and Phosphorus in Persons with Fractures. F. Bellelli.—p. 966.
*Hemorrhagic Steatopancreatic Necrosis of Traumatic Origin. G. Scaglia.—p. 971.

Behavior of Calcium and Phosphorus in Persons with Fractures.—Bellelli found that calcium in about 90 per cent of the cases diminishes, during the first few days after a fracture, by from 2 to 25 mg. per hundred cubic centimeters, from the average figure (10 mg.). The calcium-phosphorus quotient in young persons between the eighth and sixteenth days was 60; it averaged a little above 60 in adults between the seventeenth and twentieth days and rarely reached 60 in elderly persons more than 60 years old, on the thirtieth day after the fracture. These values in the blood of persons with fractures coincides with the period of clinical recovery from the fracture.

Hemorrhagic Steatopancreatic Necrosis of Traumatic Origin: Case.—Scaglia reports that in a man, aged 55, a drinker, a trauma of the abdomen caused a grave and painful syndrome, which brought about his death in a week, from hemorrhagic fatty steatonecrosis of the pancreas and complicating diffuse peritonitis. The case, which came to necropsy, is of interest from the pathogenic angle and from the standpoint of an accident.

Archivos de Cardiología y Hematología, Madrid

11: 305-351 (July) 1930

Physiopathology of "Hemostatic-Endothelial" System. F. J. Ontiveros. —p. 305.
*Depressing Effects of Quinidine Sulphate on Contractility of Myocardium. F. Martin.—p. 339.

Depressing Effects of Quinidine Sulphate on Contractility of Myocardium.—Martín presents electrocardiograms and reports the case of a patient, aged 48, with typical complete arrhythmia caused by auricular fibrillation. The electrocardiograms were made at the time of admission of the patient, nine days after admission (while receiving a treatment with quinidine sulphate), and two weeks later (when the arrhythmia had disappeared and the treatment had been stopped). The first electrocardiogram shows complete arrhythmia caused by auricular fibrillation with a frequency of 180 heart beats a minute and a normal T wave. The second electrocardiogram shows a descent of the ventricular rhythm to 100 beats but a reversed T wave. The third electrocardiogram shows a disappearance of the complete arrhythmia and a positive T wave. When the last electrocardiogram was made, the pulse was normal with 80 beats. The treatment with quinidine sulphate in this case reestablished the normal sinusal rhythm. The reversed T wave in the second electrocardiogram, however, indicates the depressing effect of quinidine sulphate on the contractility of the myocardium. This myocardial depression may endanger the patient's life. Hence the necessary careful observation in the changes of the cardiac rhythm of patients subjected to quinidine treatment and the advisability of avoiding quinidine treatment in patients who present a complete arrhythmia associated with symptoms of cardiac insufficiency.

Semana Médica, Buenos Aires

37: 1621-1700 (June 26) 1930. Partial Index

Pyelography After Intravenous Injection of Sodium-2-Oxo-5-Iodo-Pyridine-N-Acetate: Six Cases. J. Salleras and G. Vilar.—p. 1625.
Pyramidal and Extrapyramidal Hemiplegia: Case. M. Victoria.—p. 1627.
*Unusual Localization of Hydatid Cyst in Inguinal Hernia Sac. T. Gioia. —p. 1642.
Epithelioma Caused by Long Use of Water Containing Arsenic Trioxide: Case. C. Seminario and E. R. Gaviña Alvarado.—p. 1665.

Unusual Localization of Hydatid Cyst in Inguinal Hernia Sac.—Gioia reports a case in which a man, aged 21, had a cyst of the spermatic cord, associated with a funicular hernia. The tumor was incised and hydatid fluid poured forth. The presence of daughter cysts and of a mother cystic membrane was discovered. The histopathologic examination confirmed the diagnosis.

Beiträge zur Klinik der Tuberkulose, Berlin

74: 227-498 (June 23) 1930

Areas of Calcification in Lungs. G. Lüders.—p. 227.
*Phrenic Avulsion in Pulmonary Tuberculosis. L. Graf.—p. 241.
*Thoracoplasty in Pulmonary Tuberculosis. W. Sachs.—p. 254.
*Artificial Paralysis of Diaphragm in Pulmonary Tuberculosis. W. Sachs. —p. 284.
Artificial Pneumothorax in Pulmonary Tuberculosis. W. Sachs.—p. 302.
*Miliary Pulmonary Tuberculosis. W. Sachs.—p. 309.
Löschcke-Rost Operation for Pulmonary Tuberculosis. Harms and Grünewald.—p. 316.
Evaluation of Results in Treatment of Pulmonary Tuberculosis. W. Curschmann.—p. 321.
Pulmonary Tuberculosis in Barmelweid Sanatorium. W. Krebs.—p. 345.
Congenital Tuberculosis. M. Zarfl.—p. 380.
Nursling Mortality in Tuberculous Environment. E. Frantz.—p. 394.
Pneumonoconiosis Problem. R. Menzel.—p. 407.
Pneumonoconiosis and Tuberculosis. W. May.—p. 433.
Silicosis and Tuberculosis. V. Reichmann.—p. 452.
Lipolytic Enzyme Content of Blood in Bone and Joint Tuberculosis. M. M. Altschuler.—p. 479.
Specific Therapy of Tuberculosis. R. Arima and S. Taniguchi.—p. 489.

Phrenic Avulsion in Pulmonary Tuberculosis: Results.—Graf states that, in 136 patients with pulmonary tuberculosis, phrenic avulsion was followed by healing in 35, improvement in 77, no change in 21, and an exacerbation of the condition in 3. Before the operation, the sputum of 133 of the patients had contained tubercle bacilli; after the operation it was bacillus-free in 58. Of 67 of the patients (almost exclusively cases with cavern formation) who have been under observation for from two to six years, 83.5 per cent are alive, 62.5 per cent are bacillus-free and 53.5 per cent are able to do their regular work.

Thoracoplasty in Pulmonary Tuberculosis.—On the basis of his experiences in thirty-six thoracoplasties for pulmonary tuberculosis, Sachs states that the complete operation is indicated in the following conditions: (1) in severe, extensive, unilateral, cirrhotic phthisis with cavern formation in which, in spite of marked contraction and depression of the thoracic wall, the caverns have not become obliterated, bacilli are eliminated and the process remains active; (2) in extensive unilateral, cavernous processes in which the caverns are refractory to all other forms of treatment; (3) in moderately severe productive-cirrhotic phthisis with marked distortion of the diaphragm, if a cardiac insufficiency is imminent because of displacement of the mediastinum and if the general condition of the patient grows worse; (4) in unilateral mixed forms if profuse hemorrhages or other accidents that cannot be influenced in any other way threaten the life of the patient; (5) in incomplete pneumothorax which, despite the fact that it has been maintained for a long time, does not cure large caverns because of the presence of extensive adhesions; (6) in a pneumothorax empyema. Partial thoracoplasty is indicated in localized processes in the upper and lower lobes if the total operation is contraindicated on account of the poor general condition of the patient and if the amount of sputum is small; this group of cases includes particularly patients with caverns with rigid walls surrounded by cirrhotic tissue but in whom the rest of the lung is normal because in such cases complete collapse cannot be attained and in plastic operations on the upper lobe there is danger of aspiration pneumonia in the lower lobe. Thoracoplasty is contraindicated in persons more than 45 years of age and in high fever, progressive processes, general cachexia, moderately severe and severe diabetes, cardiac insufficiency with dyspnea, cyanosis or edema, chronic nephritis, amyloid degeneration of the kidneys, renal or intestinal tuberculosis, toxic diarrhea and extensive tuberculosis of the bones.

Artificial Paralysis of Diaphragm in Pulmonary Tuberculosis: Indications.—Sachs summarizes his experiences in 136 phrenic avulsions thus: In pulmonary tuberculosis phrenic avulsion has a place as an independent procedure among the collapsing operations but its effect on bacilli and caverns is much less than the effect of artificial pneumothorax and thoracoplasty. On the other hand, it constitutes a good supplementary operation for increasing the action of other methods of collapse.

Miliary Pulmonary Tuberculosis: Curability.—Sachs reports two cases of miliary pulmonary tuberculosis in which serial roentgenograms showed complete retrogression of the pathologic changes in the lungs and in which the clinical cure of the patients was complete.

Klinische Wochenschrift, Berlin

9: 1337-1384 (July 19) 1930

Chemistry of Contraction of Muscle. G. Embden.—p. 1337.
*Behavior of Diastolic Blood Pressure Following Bodily Excretion: Its Clinical Significance. F. Schellong.—p. 1340.
*Natural Immunity Reaction of Blood During Inhalation Anesthesia and During Local and Conduction Anesthesias. G. J. Pfalz.—p. 1343.
Incretory Activity of Ovaries of Infantile Rodents. H. Kallas.—p. 1345.

*Value of Determination of Blood Sugar and Diastase for Diagnosis, for Indications for Surgical Treatment and for After-Treatment in Acute Diseases of Pancreas. F. Bernhard.—p. 1346.
Silicosis as Occupational Disease. E. Saupe.—p. 1352.
Method for Detection of Disorders in Function of Liver. E. Heinicke and F. Peters.—p. 1356.
Mechanism of Paroxysmal Cardiac Dyspnea and of Bronchial Asthma. Henius.—p. 1360.

Diastolic Blood Pressure Following Bodily Exertion.—In functional tests of the circulation after bodily exertion, Schellong observed that in some persons the diastolic blood pressure showed a marked decrease. He made tests on healthy persons and on persons with vasoneurosis and hypertension. The bodily exertion to which the persons were subjected was the climbing of stairs (fifty steps). Immediately after the exertion the systolic and the diastolic blood pressure was determined by auscultation, and the heart frequency was registered with the electrocardiograph. Diagrams show the results of the tests. The author comes to the conclusion that the determination of the diastolic blood pressure after bodily exertion reveals certain conditions that cannot be detected when only the systolic pressure and the pulse frequency are measured. In the majority of young patients (aged between 15 and 30 years) with vasoneurosis either with or without hypertension, the diastolic pressure shows an abnormally strong decrease. This may be explained by an abnormal dilatation of the peripheral vessels resulting from the bodily exertion and producing in the patient a sensation of palpitation of the heart. The decrease in the diastolic pressure is not dependent on the heart frequency. In other young persons with vasoneurosis there is normal behavior of the diastolic pressure, but a prolonged tachycardia; in only a few of the patients is the reaction after bodily exertion like that in normal persons.

Natural Immunity Reaction of Blood During Anesthesia.—According to Pfalz it is still being disputed whether conduction anesthesia or inhalation anesthesia is the more advantageous method. He made tests to determine the influence of the two anesthetic methods on the bactericidal capacity of the blood. He reasoned that if the shocklike disturbance in the circulation of the patient who has undergone laparotomy is influenced in an opposite manner by the two anesthetic methods, then these opposing influences probably react on the concentration of the immune bodies that circulate in the blood. He determined the bactericidal index in eighteen patients who underwent laparotomy and who had been anesthetized either with chloroform or with ether. It was found that the bactericidal index had increased about twentyfold. Then tests were made on twenty-two patients who underwent laparotomy under the influence of spinal, sacral or local anesthesia. The results were the same as in the patients who had been subjected to inhalation anesthesia. The researches demonstrated that from the point of view of immunology the two anesthetic methods are of equal value.

Value of Determination of Blood Sugar and Diastase.—Bernhard reports that in a case of necrosis of the pancreas the blood sugar content (tested on an empty stomach) was 0.260 per cent. As a result of incorrect conservative treatment the blood sugar increased to 0.370 per cent and following a sugar tolerance test it reached 0.760 per cent. Insulin therapy reduced the blood sugar, which after the operation had been 0.519 per cent, within fourteen hours to 0.266 per cent. The secretion of diastase was not abnormally increased, although almost the entire pancreas was necrotic. In three cases of acute edema of the pancreas with strong secretion of diastase, the blood sugar content was not increased; however, a tolerance test with 50 Gm. of dextrose demonstrated a disturbance in the carbohydrate regulation. It is pointed out that the course of the blood sugar curve indicates the severity of the disturbance. During a relapse that developed following operative treatment of acute edema of the pancreas, a hypoglycemia was demonstrated. The significance of this observation is discussed and the advantages of a sugar tolerance test are demonstrated Sugar tolerance tests indicate the progress in the recovery from acute necrosis and acute edema of the pancreas. The author further discusses the value of diastase determinations for the diagnosis of pancreatic disorders. He shows that by means of diastase and blood sugar tests, with consideration of the clinical aspects, it is sometimes possible to differentiate edema of the pancreas from necrosis. Three cases that were diagnosed in this manner received at first conservative treatment. The author stresses the value of the procedure. It reduces the high mortality in the surgical treatment of acute diseases of the pancreas. During a postoperative parotitis and during a tuberculous parotitis, an increased excretion of diastase in the urine was observed. The influence of the diastase, which is produced in the parotid gland, on the carbohydrate metabolism is demonstrated in blood sugar curves that are made by means of sugar tolerance tests during disordered diastase production and after recovery. In the last part of the article the author discusses the significance of his observations for insulin treatment during acute disturbances of the pancreas.

Medizinische Klinik, Berlin

26: 1065-1102 (July 18) 1930

Physiology of Senility. G. Schlomka.—p. 1065.
*Disease of Intrapulmonary Lymph Nodes. H. Gerhartz.—p. 1070.
Diagnosis and Treatment of Bursitis of Shoulder Joint. A. von Liebermann.—p. 1073.
Lipuria During Lipoid Nephrosis. A. Bergel.—p. 1073.
Sojourn in High Mountains not Harmful for Patients with Compensated Heart Disease or with Hypertension. E. Aron.—p. 1075.
*Spinal Syndrome in Chronic Myeloid Leukemia. F. Hettfleisch.—p. 1079.
Significance of Microscopic Examinations of Pathologic Structures for Diagnosis in Gynecology. J. Schiffmann.—p. 1080.
Diagnostic Difficulties in Diseases of Abdominal Organs: Acute Yellow Atrophy of Liver. G. Scherk.—p. 1083.

Disease of Intrapulmonary Lymph Nodes.—Gerhartz directs attention to the fact that in roentgenograms of the lungs there appear frequently small shadows. They are usually circular, clearly outlined and dark but are not close together. In contradistinction to the foci of tuberculous processes, they appear in a systematic order. The author asserts that the shadows have no connection whatever with the primary tuberculous infection or with disseminated tuberculosis. Careful observations convinced him that they indicate an infection of the intrapulmonary lymph nodes. That the disease conditions of the lymph nodes are usually of a tuberculous nature is proved by the fact that the pulmonary adenitis generally concurs with tuberculous processes. However, it concurs also with nontuberculous conditions. It was noted in cases of bronchial asthma and in a soldier who developed empyema following a gunshot injury of the lung. The case of a girl, aged 15, proved that it may also develop in an otherwise healthy person.

Spinal Syndrome in Chronic Myeloid Leukemia.—Hettfleisch states that, although spinal symptoms are extraordinarily frequent in cases of pernicious anemia, they are extremely rare in the various forms of leukemia. In pernicious anemia the nervous symptoms generally involve only the spinal cord and the various neuritic disorders are rare. However, the leukemic nervous disturbances are polymorphous. The author discusses the various forms and finds that in most instances the cerebral nerves are involved and spinal symptoms are an exception. Among the numerous patients with leukemia who received treatment in the clinic in Rostock, the author observed one noteworthy case of which he gives a detailed report: A man, aged 48, had an atypical chronic myeloid leukemia. Enlargement of the spleen was absent and only one axillary lymph node was enlarged, but the blood picture was characteristic of chronic myeloid leukemia. The nervous symptoms involved only the spinal cord, and the cerebral nerves were not affected. What pathologic conditions were the underlying causes could not be definitely established; but the author thinks that the symptoms indicate a leukemic, funicular myelitis. The fact that the nervous disorders could not be influenced by the treatment of the leukemia speaks neither for nor against a leukemic myelitis because it is possible that this form of spinal disorder is refractory to the therapy of the primary disease in the same manner as the funicular myelitis of patients with pernicious anemia is in most instances not influenced even if the blood status of the patients improves.

Münchener medizinische Wochenschrift, Munich

77: 1179-1220 (July 11) 1930

Causes of Reactive Hyperemia. E. K. Frey.—p. 1179.
Prophylaxis of Scarlet Fever by Vaccination: Experiences in a Children's Institution. C. Volckers and A. Rollwien.—p. 1181.
Fundamentals in Experimental Syphilis. W. Krantz.—p. 1184.

Bacteriologic Tests on Foods. M. Gundel and H. Linden.—p. 1186.
Food Poisoning with Special Consideration of Prevention of Paratyphoid in Baden. H. Linden.—p. 1187.
Evidence Against Traumatic Origin of Osteochondritis Dissecans. L. Böhler.—p. 1189.
*Significance of Membrane in Cerebrospinal Fluid for Diagnosis of Tuberculous Meningitis. J. Ammerschläger.—p. 1190.
Difference in Behavior of Two Human Blood Groups A and A' Toward Anti-A-Lysin in O and B Serums. O. Thomsen.—p. 1190.
Unusual Neurologic Conditions Following Poisoning with Phenobarbital. G. Direktorowitsch.—p. 1191.

Significance of Membrane in Cerebrospinal Fluid for Diagnosis of Tuberculous Meningitis.—Ammerschläger gives the clinical histories of three patients with epidemic meningitis, all of whom recovered. The reports indicate that the membrane that forms in the cerebrospinal fluid is not, as generally believed, a specific symptom of tuberculous meningitis but is found in all forms of suppurative meningitis, especially during the period when the patient's condition begins to improve.

Wiener klinische Wochenschrift, Vienna

43: 897-928 (July 17) 1930

*Early Treatment of Syphilis by General Practitioner. W. Kerl.—p. 897.
Stages in Chronic Arthritis and Their Relation to Balneotherapy. E. Maliwa.—p. 902.
Combination Therapy with Artificial Pneumothorax and with Tuberculin. H. Mayrhofer.—p. 903.
Trichocephalus Dispar: Radical Treatment with Acetarsone. R. G. Gatowskaja and P. T. Kasakoff.—p. 906.
Active Immunization Against Diphtheria by Means of Löwenstein's Diphtheria Ointment. J. Zikowsky.—p. 908.
Experimental Studies on Syphilis of Kidney. M. Friedmann.—p. 909.
Clinical and Roentgenologic Diagnosis of Cancer of Lung. K. Herman.—p. 910.
*Experiences with Irradiated Substances in Treatment of Surgical Conditions. O. Ried.—p. 913.
Progress in Diuresis Therapy. P. Saxl.—p. 916.

Early Treatment of Syphilis by General Practitioner.—In the first part of the article, Kerl stresses that in doubtful cases it is necessary to search for spirochetes. He then discusses blood tests and examination of the cerebrospinal fluid. Further he defines the terms abortive and preventive cures and in what cases each of them is advisable. Treatment with arsphenamine, with bismuth and with mercury is discussed, and also the complications that may develop. In the conclusion he states that early diagnosis and treatment of syphilis is of importance for the patient for the combating of venereal diseases and also for the physician himself, for if a physician should fail to detect a new syphilitic infection the patient will no longer have confidence in him.

Experiences with Irradiated Substances in Surgical Conditions.—Ried points out that if certain substances are irradiated with ultraviolet rays, with roentgen rays or with other kinds of rays they acquire the power to emit rays. Such rays have been demonstrated by means of the photographic plate. However, the fact that they influence biologic objects and may exert a therapeutic action has not received sufficient recognition. The author attempted to use them in the treatment of ulcerations and wounds. He employed irradiated fats, such as an ointment and olive oil, and also metals, namely, aluminum and tin. It was found that when the metal foils were exposed to the direct influence of the quartz lamp they checked the development of human tissues rather than increased it. However, when the metals were exposed to irradiated fats, that is, when the irradiation was indirect, they promoted the growth of tissues. The author assumes that the therapeutic action of the irradiated substances is due to their stimulating effect on the cell metabolism. However, the cells become gradually accustomed to the same stimulation and the substance is no longer effective. In this case a different substance should be used. In the treatment of chronic ulcerations the alternate application of indirectly irradiated aluminum and of directly irradiated tin has proved successful. The author further gives several case reports. In a patient with arteriosclerotic gangrene of the great toe good results were obtained with irradiated ointment and with the alternate application of indirectly irradiated aluminum and with directly irradiated tin. This combination therapy also proved successful in a case of varicose ulcers. The irradiated ointment proved effective also in the treatment of carbuncle, abscesses of sweat glands, phlegmons, erysipeloid, pyodermia and frost bites.

Zentralblatt für Chirurgie, Leipzig

57: 1905-1968 (Aug. 2) 1930

Surgical Diathermy. E. Gohrbandt.—p. 1907.
Means of Recognition of Gastric or Duodenal Ulcers at Time of Operation. H. F. O. Haberland.—p. 1910.
*Osteoplastic Reconstruction of Patella. N. Nowosseljzew.—p. 1911.
Plastic Operation for Restoration of Chin, Lower Lip, and Part of Cheeks: Method of Applying Dressing. F. Krauss.—p. 1915.
Operating in Sitting Position. W. Sudhoff.—p. 1916.
*Injury of Duodenum from Kick in Abdomen: Case. H. Schmorell.—p. 1919.

Reconstruction of Patella.—Nowosseljzew describes how it is possible to reconstruct the patella in cases in which it was necessary to remove that bone or when it was destroyed by disease. He fashions a patella from the upper anterior aspect of the tibia and, by tunneling, using parts of the lateral ligaments and strips of fascia lata, he constructs a repository for the new patella. The periosteum-covered face of the bone is placed downward; thus the spongy side is "face up." He reports a case in which this operation completely restored every function of the joint, the patient being entirely free from pain or discomfort.

Subcutaneous Injury of Duodenum.—In the case cited by Schmorell, a young man received a severe blow in the upper part of the abdomen from the knee of a fellow player during a baseball game. He suffered immediate severe pain but after a few moments returned to the game. An hour later, severe pain and vomiting forced his retirement from the game. A physician was summoned and he made a diagnosis of intraperitoneal trauma. This was confirmed at operation. On the posterior wall of that part of the duodenum which crosses the spinal column there was a small perforation from which bile exuded. The hole was closed and the patient made an uneventful recovery. There was no external evidence of any injury.

Nederlandsch Maandschrift voor Geneeskunde, Leyden

17: 1-68, 1930

Production of Vitamin D with Aid of Ultraviolet Rays. E. H. Reerink and A. van Wijk.—p. 1.
*Arthritis Deformans in Children. J. C. Schippers.—p. 27.
Topographic Peculiarities of Arteries of True Pelvis. C. A. J. Quant.—p. 43.

Arthritis Deformans in Children.—Schippers describes in detail four cases of arthritis deformans he observed in children ranging from 2 to 10 years of age. The onset is usually slow. Some fever of an irregular type, lack of appetite and a bad facies are the first symptoms. After a time, attention is called to one or more joints by the fact that they show some swelling or give evidence of pain and functional disturbances. Often the anomalies are symmetrical. There develop near the joints painful puffy swellings. The capsule is usually thickened and sometimes a bursa is swollen. After a variable period, other joints become involved. It is a peculiar fact that the spinal column is commonly temporarily affected. The movements of the head are thus somewhat limited. During the sickness, periods of high fever occur repeatedly, which show a strongly intermittent character. The anomalies may disappear entirely and the patient is apparently recovered. But after a varying period the symptoms may return. While the functional disturbances may at first be slight, finally the capsule and likewise the surrounding tissues may shrink, and contractures may arise that result in fixed positions and luxations. Skeletal changes do not appear until the last stage. The clinical aspects may then correspond closely to the manifestations of arthritis deformans in adults. It is peculiar that the heart is almost never involved. To be sure, a fibrinous pericarditis or a left-sided fibrinous pleuritis sometimes develops. Muscular atrophy is usually noted early, which causes the swollen joints to stand out even more boldly than otherwise. The blood picture is not characteristic. There is, as a rule, a marked anemia, and, during the fever periods, a mild leukocytosis, often with deviation to the left. Sometimes leukopenia is observed. Blood cultures are always negative. The cause of arthritis deformans in children is unknown. Remedies do not help much. The pain can, however, be combated with salicylic acid preparations. However, sometimes remarkable spontaneous improvements and even apparent recoveries occur.

the lowest value of all; namely, an average of 2.31 conceptions for each married pair.

All of the figures given demonstrate a trend but fall far short of indicating the real degree of infertility. The data that they contain, however, are susceptible of further analysis, the end-result of which may be regarded as indicating a tendency, even though the absolute magnitude of the figures lacks the authority intrinsic in larger groups similarly analyzed. These data are given in table 6.

It will be noted that those who have been married less than three years and have failed to conceive have been deducted from the infertile matings. As was stated previously, the figure taken is an arbitrary one but, in my opinion, represents a fair allowance for this element of uncertainty. It should also be noted that the factor of contraception has been eliminated from the figures as presented for the infertile group. A brief review of the table shows a definite infertility of nearly 30 per cent in the pituitary group, slightly more than 30 per cent in the thyroid, and over 35 per cent in the ovarian group. All of these figures exceed, and exceed significantly, the infertility exhibited by the nonendocrine series (20 per cent), though the latter group shows a lowered fecundity which is substantially twice that of the usually accepted figure based on community surveys. Reynolds and Macomber [4] conclude that from 10 to 12 per cent represents a fair measure of infertility, and that without allowance for the artificial element of contraception which today must be recognized as a very definite factor. Since it has been carefully excluded from the present survey, it seems fair to assume that the data as presented show not only a lowered fertility through the agency of disease, as might well have been anticipated, but that those patients presenting evidence of an endocrine disorder demonstrate an even greater lowering of fecundity, least marked in the pituitary, and most in the ovarian cases.

TABLE 6.—*Analysis of Infertility*

Datum		Pituitary	Thyroid	Ovary	Nonendocrine
Married, number	(a)	290	182	177	406
Conceived, number	(b)	205	128	122	324
Not conceived, number	(c)	85	54	55	82
Not conceived and married less than 3 yrs.	(d)	23	8	20	23
Infertile:					
1. Nonconception (c — d)	(e)	62	46	35	59
2. Miscarriage	(f)	14	8	19	18
	(g)	3	1	4	5
	(h)	102	63	78	105
	(i)	76	54	54	77
Infertile, per cent (i / a — d — g)	(j)	28.8	31.2	35.3	20.4

SUMMARY AND CONCLUSION

1. A series of sterile marriages has been reported with regard to the coexistence of various diseases. The marriage histories of a group of normal, healthy, pregnant women have served as controls.

2. It appears that endocrine disorders do not result in a decreased number of marriages.

3. The percentage of sterile marriages is highest in those showing ovarian disease, next highest in thyroid, and lowest in pituitary disorders. In the nonendocrine group studied, infertility was definitely less frequent than among those having endocrine disease. Even with the nonendocrine group the incidence of infertility is double that usually regarded as normal for the community.

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[4] Reynolds, Edward; and Macomber, Donald: Fertility and Sterility in Human Marriages, Philadelphia, W. B. Saunders Company, 1924.

FUNCTIONAL DISORDERS OF MENSTRUATION

WITH REMARKS ON ORGANOTHERAPY *

EMIL NOVAK, M.D.
BALTIMORE

Abnormalities in the quantity and rhythm of the menstrual flow are, of course, frequently associated with definite anatomic lesions in the pelvis. This is especially true of menstrual excess, which is much more often due to local than to general causes. The opposite is true of deficiency or absence of the flow, although even complete and permanent amenorrhea may be caused by pelvic disease, as, for example, by lesions which destroy all ovarian tissue.

Even when definite lesions are present, there is little doubt that the associated menstrual abnormalities are often to be explained by disturbances of function rather than by any mechanical effect of the lesions themselves. It is hard, in many instances, to draw the line between the rôles played by pathologic anatomy and pathologic physiology, especially in the present incomplete stage of our knowledge.

In a large group of cases of amenorrhea and scanty menstruation (hypomenorrhea), and also in a considerable proportion of cases of menorrhagia (hypermenorrhea), however, there is no demonstrable lesion of the generative organs, so that it is customary to speak of such cases as of the functional type. Certainly, at any rate, the functional factor is manifested in purest form in this group, and can be studied without the necessity of evaluating the influence of an associated anatomic lesion. Besides the quantitative disorders already mentioned, functional derangement of the sex cycle may manifest itself through disturbances of the menstrual tempo, i. e., too frequent or too infrequent menstruation (polymenorrhea or oligomenorrhea).

OVARIAN THERAPY IN LIGHT OF NEWER KNOWLEDGE OF MENSTRUATION

It is unnecessary to urge that study of the abnormalties of the menstrual cycle must be based on a knowledge of the physiology of normal menstruation. This at once faces us as gynecologists with our problem, for our knowledge of the normal cyclic physiology is still far from complete. From time to time new discoveries make us feel that we are beginning to stand on solid ground, but, in every case the new light has only served to give us a glimpse of still unraveled mysteries. For example, with the discovery, at the very end of the preceding century, of the essential rôle of the ovarian hormone or hormones in the production of menstruation, the problem seemed solved. Our immediate predecessors, in their innocence, at once felt able to distinguish conditions of ovarian excess and, especially, of ovarian deficiency. Spurred on by the then fresh triumphs of thyroid therapy, they were quick to apply the same principles to the new problem. If amenorrhea is the result of absent or deficient ovarian secretion, the mere feeding of ovarian substance was the rational procedure for its relief. And thus, on evidence which now seems pathetically flimsy, sprang up the weedy growth of ovarian therapy which we are now trying to clear away, lest it choke the few hardy plants of truth that have raised their heads since then.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

* Owing to lack of space, this article has been abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

The whole subject of the physiology of the menstrual cycle is still in a very fluid state, and constant readjustment of our concepts will no doubt be necessary for many years to come. Recently (in the Gilliam Memorial Lecture of 1929), I[1] reviewed certain important recent additions to our knowledge which make it necessary to revamp our ideas of the mechanism of menstruation and to discard certain long cherished beliefs. For example, evidence has been brought forward which must make us at least question seriously the indispensability of ovulation to menstruation. Again, the almost universally accepted opinion that the life of the germ cell itself is the dominating influence in the cycle, and the one that determines its periodicity—the doctrine of the "primacy of the ovum"—must be abandoned altogether, with, unfortunately, no satisfactory substitute as yet to take its place. The bearing of this one point alone on the question of the causation of the disorders of menstrual rhythm is obvious, as will be discussed later.

Of more general interest, perhaps, because of the propensity to treat disease with "extracts" of one sort or another, if given any encouragement whatever, are the recent discoveries as to the number, nature and relation of the ovarian hormones. In spite of the demonstration by Fraenkel,[2] in 1903, of the physiologic importance of the corpus luteum, there had been no wholly satisfactory demonstration of the assumed properties of this secretion until about one year ago. Praiseworthy efforts had been made along this line by Papanicolaou,[3] Hisaw,[4] and others, but it was only the recent work of Corner and Allen[5] that demonstrated conclusively the correctness of the views held by many that the corpus luteum produces a principle just as important in the menstrual cycle as the follicle hormone.

Following the demonstration of the potency of the follicle hormone in producing typical estrous effects in the lower animals, there had occurred the usual enthusiastic surge to apply this fact therapeutically, just as soon as commercial preparations of the product became available. I do not believe that any one will maintain that these hopes have been realized, or, indeed, that thus far any worth while therapeutic results have been achieved. There are a number of reasons for this failure, but one of them is the fact that the follicle activity is responsible for only a fraction of the cyclic physiology.

The demonstration of the corpus luteum principle, while of great importance from a physiologic standpoint, does not by any means supply all the scientific groundwork necessary for intelligent organotherapy. For example, nothing can be more certain than that other endocrine glands, especially the pituitary, thyroid and suprarenal, play an important part in sex physiology. One can well believe that the ovary is only the immediate portal of entry through which the entire endocrine chain, functioning almost as if it were a single though composite organ, empties its influence into the female sex apparatus.

With regard to the anterior pituitary lobe, the mechanism of this relation has been brilliantly illuminated by the studies of Smith and Engle,[6] and Evans and Long[7] in this country, and of Zondek and Aschheim[8] in Germany. The extremely powerful effects produced on the ovary, and through it on the generative canal, by repeated implantations of anterior pituitary tissue, demonstrate beyond question the importance of the latter in the physiology of the cycle, and—the point with which we are concerned in the present discussion—with its probable importance in many menstrual disorders that in the past were looked on as purely pelvic problems, so to speak. As a basis for later discussion, it is important to remember that the hypophyseal hormone has no direct effect on the genital mucosa, but exerts its effect on the ovaries, so that it has been designated as the "motor of the ovaries." In this lies the chief difference as compared with the follicle substance, which produces a direct estrous effect on the genital mucous membranes, even in animals which have been previously castrated. For a fuller discussion of these physiologic problems I would refer to my previous paper.[1]

There is still much to learn as to the part played in menstruation and its disorders by such organs as the thyroid and suprarenal. Riddle,[9] with much justification, states that "nearly all of the internal secretions are intimately concerned in one or other special aspect of reproduction." He has demonstrated definite seasonal variations in the size of a number of the ductless glands, apparently related to periods of active or inactive reproduction. He believes that the essential processes of reproduction are not under the control of the nervous system. This, however, is not equivalent to saying that the cycle cannot be affected through the nervous system. In the human being, for example, there is ample evidence that nervous and psychic factors may occasionally be important in the production of disorders of menstruation.

Even our present incomplete knowledge indicates a far greater intricacy of the cyclic mechanism than had been anticipated. The reproductive function, because of its essential importance in the perpetuation of the species, seems to be physiologically more deeply rooted than almost any other. This very intricacy of mechanism makes the interpretation of menstrual disorders correspondingly difficult. My discussion of these disorders, therefore, will be disappointingly lacking in sharpness and definition, because of the poor light afforded by our present knowledge. It will deal with broad principles rather than with rules of thumb.

FUNCTIONAL AMENORRHEA AND HYPOMENORRHEA

Functional amenorrhea and functional hypomenorrhea may be discussed together because, so far as is known, the underlying causes are the same. They constitute the largest and most important type of amenorrhea and hypomenorrhea, for local causes, other than the physiologic ones, are relatively uncommon and usually not difficult to recognize. The causes of functional amenorrhea may be grouped into the constitutional and the endocrinopathic, although it is not always easy to draw the line between them.

Constitutional.—It has long been known that constitutional diseases of various sorts, associated as they are with deterioration of the general health, are often characterized by deficiency or absence of menstruation. The latter, therefore, are frequently symptoms of tuberculosis, chronic nephritis, diabetes, and similar debilitating diseases. Amenorrhea is not infrequently found in even incipient tuberculosis, and it may, indeed, be the first symptom noted by the patient.

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[1] Novak, Emil: Recent Advances in the Physiology of Menstruation, J. A. M. A. **94**: 833 (March 22) 1930.

[2] Fraenkel, L.: Arch. f. Gynäk. **68**: 438, 1903.

[3] Papanicolaou, G. N.: A Specific Inhibitory Hormone of the Corpus Luteum, J. A. M. A. **86**: 1422 (May 8) 1926.

[4] Hisaw, F. L.: Physiol. Zool. **2**: 59 (Jan.) 1929; J. Exper Zool. **42**: 411, 1925.

[5] Corner, G. W., and Allen, W. M.: Am. J. Physiol. **88**: 326 (March) 1929.

[6] Smith, P. E., and Engle, E. T.: Am. J. Anat **40**: 159 (Nov.) 1927.

[7] Evans, H. M., and Long, J. A.: Anat. Rec. **21**: 62, 1921.

[8] Zondek, Bernhard, and Aschheim, S.: Arch. f. Gynäk. **130**: 1 (April) 1927.

[9] Riddle, Oscar: Endocrinology **13**: 311 (July-Aug.) 1929.

The various forms of anemia are even more important in this regard. None of the older textbooks failed to elaborate on the frequency and importance of chlorosis in this regard, though now it appears to be a vanishing disease. The explanation of amenorrhea produced by these debilitating diseases has in the past been that it represents an effort on the part of nature to conserve the strength of the patient. Nothing, however, could be said of the mechanism. The experimental studies of McCollum[10] and others, however, have demonstrated that the ovary is singularly sensitive to nutritional influences. This is most clearly seen in the effects produced by deficiencies in the vitamin content of the diet, for dietary defects of this type quickly produce in animals a disappearance of the sex cycle. That the same effect is produced in the human female was illustrated on a grand scale in the "Kriegsamenorrhöe" so widely prevalent throughout the belligerent countries during the privation days of the World War. The immediate ovarian effect produced by this cause is probably an interference with the maturation of the follicles, and, of course, with ovulation.

The present-day prevalence of self-dieting, often extreme, among women makes this cause of amenorrhea of anything but academic interest. While the diet of the average American woman contains a sufficient proportion of the essential vitamins, exceptions are at times found, and are common in the case of women making strenuous efforts to reduce.

Little need be said as to the treatment of amenorrhea due to the causes enumerated here, for it is obviously to be directed to the cause of the disorder. For example, the rational procedure in cases of tuberculosis or anemia is the treatment of these conditions, just as, in the management of amenorrhea due to dietary errors, insistence on a properly balanced diet will effect a cure. Perhaps the most important injunction is to abstain from any direct treatment of the menstrual disorder, whether by the old-fashioned emmenagogue drugs or by the more modern organ extracts. Such measures are irrational, often harmful, and almost always unsuccessful.

Endocrinopathic Amenorrhea and Hypomenorrhea.—This is perhaps the most frequent and most interesting of all types. Its mechanism is varied, and on this variation are based certain clinical syndromes presented by the patients, placing them under different categories. For example, it is customary to speak of a *hypogonadal* and a *hypopituitary* type, while *thyroid* hyperfunction, and, less commonly, thyroid hypofunction, may likewise be of causal importance. It should be recognized, however, that these terms are not based on any exact knowledge of the nature of the relationship implied.

In the so-called hypogonadal type, the endocrine effect is believed to involve chiefly and perhaps only the ovary. The prototype of this variety is the normal amenorrhea after the menopause, or, though not so physiologic, that seen after complete removal of ovarian tissue. One would expect, therefore, to find the subjective and objective conditions similar to those seen after the menopause, but there are numerous exceptions to this. From a subjective standpoint it is true that vasomotor symptoms may be noted, though they are rarely troublesome. There may be moderate or at times marked adiposity, with the heaviest deposits about the abdomen and hips. In other cases, however, where no other endocrine factor than the ovary can be demonstrated, and where other constitutional factors likewise are lacking, there may be no gain, and perhaps even some loss of weight. In short, the tendency has been to apply the designation of "hypogonadal" to cases in which these other factors cannot be established. The precariousness of such a deduction is obvious.

The endocrinopathic cause of amenorrhea for which the most satisfactory scientific evidence is available is that due to anterior pituitary deficiency. This type of amenorrhea is associated with adiposity, sometimes moderate, at other times quite marked. In one of my patients, there had been a gain of 90 pounds (41 Kg.) in one year. The deposit of adipose tissue shows a rather characteristic distribution, with often large shoulder pads, rather large bust, a narrow waist, and heavy deposits about the abdomen, buttocks and hips. The hands are small and delicate, and the fingers slender and rather pointed. There may be little in the way of subjective symptoms, though headache ("pituitary headache") is sometimes complained of. This clinical picture has been rather firmly established in the literature as adiposogenital dystrophy, or Fröhlich's syndrome. It was originally described by Fröhlich[11] in association with a pituitary tumor but is now accepted as occurring with purely functional pituitary deficiency.

There is a sound experimental basis for this view in the studies of Cushing and his co-workers,[12] who demonstrated that partial ablation of the anterior pituitary in female dogs is followed by obesity, together with hypoplasia of the generative organs, manifested clinically by a disappearance of the sex cycle. There has been much discussion as to whether all these symptoms are really of pituitary origin, but the recent studies of Smith[13] appear to leave no doubt that the adiposity is due to associated disturbance of the adjoining hypothalamus, while the changes in the genital tract are unquestionably of anterior pituitary origin. The fact remains, however, that there is a characteristic clinical association between the two sets of changes, so that the resulting syndrome is still commonly designated as adiposogenital dystrophy.

Functional disturbance of the thyroid may likewise be characteristized by amenorrhea or hypomenorrhea as one of the symptoms. This is more frequently the case with hyperfunction than with hypofunction, which, in my experience, is more commonly characterized by menstrual excess. There are, however, numerous exceptions to both these statements, thus confusing the exact nature of the thyroid influence on the menstruation. As with amenorrhea of the hypopituitary type, there is commonly a tendency to obesity if the thyroid function is deficient. The adipose tissue, however, is more evenly distributed, with little tendency to the localizations described in connection with the pituitary variety, and it may show some degree of the infiltrative myxedematous thickening seen so often with hypothyroidism.

If, as is perhaps more often the case, the amenorrhea is associated with hyperthyroidism, the well known characteristics of the latter condition are seen to greater or less degree. I need not stress the importance of studies of basal metabolism in the proper evaluation of these cases, or in their proper management. For that matter, they can rarely be dispensed with in the proper interpretation of any endocrinopathic menstrual disorder.

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[10] McCollum, E. V. The Newer Knowledge of Nutrition, ed. 2, New York, Macmillan Company, 1922.

[11] Frohlich, Alfred: Wien klin Rundschau 15:883, 1901.

[12] Cushing, Harvey; Crowe, S. J., and Homans, J.: Bull. Johns Hopkins Hosp. 21:127, 1910.

[13] Smith, P. E.: Am. J. Anat. 45:205 (March 15) 1930.

Associated Symptomatology of Endocrinopathic Amenorrhea.—In a large proportion of cases, there has been, in my experience, little or nothing in the way of subjective symptoms. At times, especially in the hypogonadal cases, there has been a complaint of vasomotor flushes, but these have only occasionally been very troublesome. The same thing may be said of the vertigo occasionally observed. Headache is not infrequent in cases of the adiposogenital dystrophy group.

Nervousness and depression are rather common, but I believe they are due in large measure to the psychic effect produced by the absence of menstruation. This, in turn, is often due to the wrong ideas held by many of the laity as to the significance of menstruation. The belief is still prevalent among the laity that the purpose of the menstrual flow is the purgation of the woman's system of impurities, and that abolition of the function causes a retention of these harmful substances. Again, a superstition often encountered, especially among the less intelligent, is that amenorrhea may lead to consumption, that the girl who does not menstruate is likely to "go into decline." This belief no doubt has its origin in the fact that in many cases of actual tuberculosis amenorrhea is an associated symptom.

In the case of married women who are anxious for pregnancy, the sterility which so often accompanies long standing amenorrhea introduces another factor of the greatest importance in producing nervous and psychic symptoms. *In general there is no doubt that amenorrhea greatly lessens the woman's chances for pregnancy,* although exceptions are not infrequently observed. I have seen pregnancy supervene in a number of cases in which the women had not menstruated for several years. Taken as a whole, it is this group of cases of amenorrhea, i. e., those in which sterility is the underlying complaint, that most often calls for efforts at correction. Among women in whom the picture of the amenorrhea is not confused and overshadowed by the desire for children, it is in a large proportion characterized by few or no symptoms, and the patient may be in as good health as if she menstruated regularly. This statement does not, of course, apply to the far less frequent cases in which some organic lesion, such as a pituitary tumor, is present.

Diagnosis.—From what has been said, it is evident that amenorrhea is merely a symptom of some underlying condition, and not an entity in itself, to be treated by this or that form of organic extract. Every effort must be made to classify the individual case on the basis of careful history and physical examination, with such aids as the laboratory can offer. The latter will often mean such measures as roentgenologic study of the sella turcica, urinalysis, tests of sugar tolerance and studies of basal metabolism. The more obvious types due to such definite diseases as tuberculosis and anemia are determinable by the usual diagnostic methods. The history should be complete enough to bring out such factors as dietary defects, changes in weight, and endocrinopathic manifestations such as marked fluctuations of weight. The physical examination will, of course, include such details, important in endocrinopathic study, as the presence or absence of obesity, the distribution of the adipose tissue, the distribution of hair, the height of the patient, and the condition of the pelvic organs.

Treatment.—There are a good many cases in which endocrinopathic amenorrhea needs no treatment, others in which the treatment need be only a reassurance as to the essential harmlessness of the condition in itself, and still others in which efforts at correction are definitely indicated. To the first group belong the cases of moderate severity, with no subjective symptoms, in which pregnancy is not an important consideration. For example, a woman aged perhaps 35 to 37, whether married or unmarried, will usually choose to forego any treatment if convinced of the harmlessness of the disorder and the usual unsatisfactoriness of the treatment. She will be quite willing to resign herself to a premature menopause, which is about what the condition represents.

In women who have been much perturbed and depressed by the amenorrhea, and especially when this upset is due to such erroneous ideas as I have mentioned previously, the physician can perform a real service by explaining in simple language the real significance of menstruation, stressing the fact that complete absence of the periods is compatible with good health. In a considerable number, however, it is advisable to resort to treatment, with a frank explanation to the patient as to its limitations.

The third group presents the clearest indication for treatment. It includes those cases in which there are definite associated symptoms, and, more particularly, when an associated sterility, otherwise unexplainable, constitutes the problem of immediate concern to the patient. Aside from measures of general hygiene and procedures directed to the improvement of general health, organotherapy of one form or another is the first thought of most practitioners in the treatment of most cases of this group. If based on rational indications, this is, of course, fully justified; but it should be remembered that the organotherapy of endocrinopathic amenorrhea is rather unsatisfactory and with great frequency unsuccessful. I have elsewhere fully reviewed the entire subject of ovarian therapy.[14] Regardless of the possible value of the oral administration of certain ovarian preparations for the subjective symptoms of menstrual deficiency, though even this is open to some question, a review of the literature and a rather large personal experience have convinced me that they have no value in the reestablishment of menstruation in cases of amenorrhea. It is of interest to note that the Council on Pharmacy and Chemistry, after an impartial review of the question, has just decreed the omission of all such preparations from New and Nonofficial Remedies. The same pessimistic statement may be made of the various preparations introduced for hypodermic administration, up to the discovery of the potency of follicle hormone in producing the sex cycle in laboratory animals that had been previously castrated.

As I stated earlier in this paper, the results of follicle hormone therapy in amenorrhea have thus far been extremely disappointing. Its chief value, thus far, has been in the diagnostic field, in the hands of the small group of investigators who have utilized it in this way. Studies of the follicle hormone content of the blood have apparently been of help in differentiating conditions of excess and deficiency, although even this aspect of the work has scarcely passed out of the experimental phase. The problem is further confused by the fact

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14. Novak, Emil: The Present Status of Ovarian Therapy, J. A. M. A. **91:** 607 (Sept. 1) 1928.

that even amenorrhea may be associated with an excess rather than a deficiency of follicle hormone in the blood (polyhormonal amenorrhea), as shown by Zondek[15] and others. A number of reports have been made as to the production of menstruation by injections of follicle hormone, but they are few and unimpressive. Even when uterine bleeding is produced, it is almost certainly not a genuine menstruation, for the follicle hormone cannot itself complete the menstrual cycle. It probably can bring about a certain degree of hyperemia and hypertrophy of the endometrium, even in human females, if given in sufficiently large dosage, and this may at times be followed by bleeding. But this is not menstruation, for among other things, the ovary plays no part in it, and the endometrial changes are quite different.

The effect of the follicle hormone is exerted on the genital mucosa alone, so that it is to be looked on as purely substitutional and transient. There is no tendency toward a reestablishment of the ovarian cycle, so that it would be necessary to repeat the injections whenever the patient wished to menstruate. There are few patients so anxious to menstruate that they would be willing to continue indefinitely with such treatment, especially when it involves many disagreeable hypodermic injections for every course of treatment. Furthermore, there is not the slightest reason to expect that it would enhance the patient's chances for pregnancy. This question of follicle hormone therapy is fully discussed in a previous paper.[16]

Since the writing of that paper, two other methods of administering ovarian follicle substance have been suggested to obviate the necessity of repeated hypodermic injections. One is the method of administration by vaginal suppository, with which I have had only a limited experience. The other plan, recently suggested by Pratt and Smeltzer,[17] is that of the nasal spray, as the hormone apparently enters the circulation of the patient when given in this way. Neither method can hope, however, to bring about any more potent results than the method of direct hypodermic injection. Since the latter itself is admittedly unsatisfactory in its results, there is little reason to expect any wide adoption of these newer methods, in spite of their lessening of the patient's discomfort.

Within the past few months, Doisy, Veler and Thayer[18] in this country, and Butenandt[19] in Germany, have announced the isolation of this hormone in crystallized form. These crystals are of enormous potency, Doisy and his co-workers stating that each grain of their substance possesses the potency of two million rat units. A substance as powerful as this may some day prove to be of great value therapeutically, but the foregoing pessimistic remarks are based on conditions as they now are, and I believe that they are justified.

In previous papers I have emphasized the fact that the endometrial preparation for menstruation is really a preparation for a possible pregnancy, and that the corpus luteum is just as important in the cycle as is the follicle. If, therefore, an active corpus luteum principle could be isolated, there would be reason to believe that the normal sequence of events in human menstruation could be mimicked much more completely than with follicle hormone alone.

An active corpus luteum extract has recently been prepared by Corner and Allen,[5] although it is not yet available commercially. It will be interesting to see whether the sequence of injections of follicle hormone, followed by injections of corpus luteum hormone, according to the plan which I suggested in 1922, will bring about menstruation more often than injections of follicle hormone alone. This principle, which I have repeatedly urged on the basis of what has been known as to the histologic interrelationships of menstruation, has been firmly established by the work of Willard Allen[20] and of Hisaw.[21] Both of these investigators have demonstrated that the corpus luteum hormone can bring about the characteristic pregravid changes in the endometrium only when the latter has been adequately prepared for this by injections of the follicle hormone. Even the combined plan of treatment, however, would be a substitutional rather than a permanently stimulating treatment, so here again it will probably not have a wide appeal in the treatment of amenorrhea.

Far more promising appears to be the field opened up by recent work demonstrating the effect on the ovary of the anterior pituitary hormone. The method of implantation, used for experimental work, would not be practicable clinically, but already efforts at obtaining the active principle in a form suitable for clinical use are being made.

The oral administration of pituitary substance, on the basis of laboratory studies, is probably worthless, although I am well aware that it is employed by many excellent clinicians, especially in the treatment of adiposogenital dystrophy. My own impression has been, however, that any benefit which commercial preparations of anterior pituitary substance have seemed to confer has come from the thyroid extract which has almost always been combined with them. Within the past few months Collip[22] has published studies which indicate that the oral administration of properly prepared extracts are potent in doses only two or three times as great as those required for hypodermic administration. These results contradict those of Smith and Engle, and other investigators, so that the status of the question is still unsettled. In a very small group of cases of ovarian hypofunction which Campbell and Collip[23] treated by the oral administration of their extract, encouraging results were obtained, but these observations obviously call for multiplication and confirmation. Zondek,[24] Biedl,[25] Seitz[26] and others have likewise been experimenting with anterior pituitary therapy, though by the hypodermic route. Little has as yet been achieved, and the method is said not to be devoid of risk. In spite of its great promise, therefore, this plan of therapy is as yet undeveloped and, of course, inaccessible to most clinicians.

As a matter of fact, thyroid extract still remains the sheet anchor in the treatment of functional amenorrhea, as in so many other endocrinopathies. Its rationale is not always clear, except, of course, when a definite hypothyroidism is present. Even in the absence of the latter, however, the thyroid substance is commonly employed on empiric or semiempiric grounds. It will usually reduce the weight and may cause some subjective improvement, but it will only occasionally restore menstruation, except in the cases of outspoken hypothyroidism.

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[15] Zondek, Bernhard: Zentralbl f. Gynak 54:1 (Jan. 4) 1930
[16] Novak, Emil: Endocrinology 11:173 (May-June) 1927
[17] Pratt, J. P., and Smeltzer, Merrill Endocrinology 13:321 (July-Aug.) 1929.
[18] Doisy, E. A.; Veler, C. D., and Thayer, S Am J Physiol 90: 329 (Oct.) 1929.
[19] Butenandt: Die Naturwissenschaften 17:879, 1929.
[20] Allen, W. M.: Am J Physiol 92:612 (April) 1930.
[21] Hisaw, F. L., and Leonard, S. L.: Am. J. Physiol. 92:574 (April) 1930
[22] Collip, J B Canad M A. J. 22:215 (Feb) 1930.
[23] Campbell, A. D., and Collip, J B: Canad. M A. J. 22:219 (Feb) 1930
[24] Zondek, Bernhard Klin. Wchnschr 8:157 (Jan. 22) 1929.
[25] Biedl, A Endokrinologie 2:241 (April) 1929.
[26] Seitz, Ludwig Monatschr. f Geburtsh. u. Gynak. 84:79 (Feb) 1930

All in all, therefore, the endocrine treatment of amenorrhea must still be viewed pessimistically, in spite of the glowing promises of successful results pictured in the literature of many manufacturers of organ extracts. Of other methods of treatment, such as radiotherapy of the ovaries and pituitary body, I can say little from personal experience. They have been employed by a number of gynecologists, but the methods do not seem to have achieved any great vogue, which does not argue for any brilliance of result. Rubin,[27] Rongy,[28] and others have reported good results from light roentgenization of the ovaries, but I agree with Frank that the method should be used with great caution, for fear of destroying the follicle apparatus in an already deficient ovary.

FUNCTIONAL MENORRHAGIA (HYPERMENORRHEA)

The subject of functional menorrhagia I shall discuss in only a summarizing fashion, as I have elaborated on it in a number of previous papers.[34] It is seen only during the reproductive epoch and occurs most characteristically at or near the menopause and, less frequently, at or shortly after puberty. It may, however, occur at any period of menstrual life. As a rule the pelvic organs show no demonstrable lesion. The characteristic ovarian finding is an absence of corpora lutea and the presence of a persistent graafian follicle. The endometrium usually shows a characteristic picture, designated as hyperplasia of the endometrium. This, however, is merely the result of the ovarian disturbance, which evidently consists in a persistence of the follicle effect, with no secretory or desquamative changes in the endometrium.

It has been generally believed that the immediate ovarian disturbance associated with functional bleeding consists of an excess or persistence of the follicle stimulus, while the corpus luteum activity is in abeyance. Recent studies,[24] however, indicate that in some cases of amenorrhea a similar excess of the follicle principle is found in the blood, and that the endometrium may in such cases even exhibit a definite hyperplasia. I have myself seen typical hyperplasia of the endometrium in an amenorrheic woman, so that this endometrial lesion cannot be considered to be as constantly associated with abnormal bleeding as has been heretofore believed.

The type of menorrhagia under discussion, however, is certainly of functional origin. Whether the disturbance is really primarily in the ovary or whether it originates elsewhere in the endocrine chain, it is difficult to say. Certainly there are cases of menorrhagia of thyroid origin, as already mentioned, but these are far less frequent than the type under discussion, which can be considered one of the common menstrual disorders.

For the treatment of this disorder, as well as for a full discussion of its clinical and pathologic characteristics, I would refer to my previous papers on the subject.[34] Two new aspects of the problem, however, may be indicated.

The first is the possibility that the anterior pituitary may play an important part in the causation of this disorder. This is suggested by the demonstrated potency of this gland in stimulating follicle maturation, and, under certain conditions, of preventing ovulation by imprisonment of the ova within the follicles. Varying effects are produced by varying proportions of the two hormones which, according to the work of Evans and Simpson,[32] are produced by the gland, and it is quite possible that some disturbance of the normal balance between these two principles is the underlying cause of this type of hemorrhage, especially in view of the ovarian picture that characterizes it.

The second recent development is the successful elaboration, by Corner and Allen,[5] of a really potent corpus luteum extract. Whatever the underlying cause of functional hemorrhage may be, a characteristic ovarian finding is an absence of corpora lutea. The administration of an active corpus luteum extract would therefore be a rational procedure. Thus far no such extract has been available, but, if the work of Corner and Allen results in making such an extract available for clinical use, there is reason to hope that the organotherapy of functional hemorrhage of this type will be more successful than at present. There is, of course, no certainty of this, for there are still many unknown links in the menstrual chain. The use of such an extract, however, should certainly be tried, for this type of bleeding, especially when it affects women in whom preservation of the reproductive capacity is important, constitutes one of the most difficult present-day problems in gynecology.

The employment of hypodermic treatment for this type of pathologic hemorrhage does not possess the disadvantages mentioned in discussing hypodermic medication in cases of amenorrhea, especially as the former is a seriously debilitating disorder. The alternative of organotherapy is usually surgical operation or radiotherapy, both undesirable in younger women. If, therefore, an extract is made available which controls this type of bleeding, it will confer an inestimable boon to patients suffering with this troublesome disorder.

SUMMARY

Recent advances in knowledge of the physiology of menstruation make it necessary to revise the interpretation of the mechanism involved in functional menstrual disorders, and, of course, have a bearing on problems of treatment as well.

Amenorrhea and hypomenorrhea (scanty menstruation) are most often of constitutional or endocrinopathic origin, local pelvic causes being much less common. The ovarian function is singularly sensitive to nutritional and circulatory deficiencies, disappearance of the cycle being the common result. The treatment of the amenorrhea produced by such general diseases as tuberculosis, anemia and dietary deficiencies is, of course, the treatment of the underlying conditions, and endocrine therapy is contraindicated.

Of the endocrine causes of amenorrhea the most common are ovarian deficiency, hypopituitarism and thyroid disorder, most often hyperfunction, but at times hypofunction. These types are often distinguished by fairly well defined clinical syndromes, such as the adiposogenital dystrophy of hypopituitarism, but the scientific basis for such differentiation is often incomplete.

Amenorrhea is often unaccompanied by other symptoms and may need no treatment except reassurance of the patient as to the essential harmlessness of the condition. In other cases, as when it is subordinated to the accompanying sterility, efforts at treatment are indicated, though unsuccessful in a large proportion of cases.

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[27] Rubin, I. C.: Am. J. Obst. & Gynec. **12:** 76 (July) 1926.

[28] Rongy, A. J.: Am. J. Obst. & Gynec. **13:** 598 (May) 1927.

[34] Novak, Emil, and Martzloff, K. H.: Am. J. Obst. and Gynec **8:** 385 (Oct.) 1924. Novak, Emil: The Treatment of Functional Uterine Hemorrhage, J. A. M. A. **86:** 1105 (April 10) 1926.

The three organ extracts that are commonly employed are those derived from the ovary, the anterior pituitary and the thyroid, in various combinations. The oral administration of ovarian extracts is worthless, as far as any effect in the reestablishment of menstruation is concerned. The same statement probably applies to the older forms of preparations for hypodermic administration. Ovarian follicle hormone, more recently employed, has so far yielded no worth-while therapeutic results, important as it is physiologically. The recent discovery of an active corpus luteum principle may improve the results somewhat, but these will still be far from ideal, as neither of the principles named apparently has any stimulating effect on the ovary itself.

The treatment of amenorrhea by means of the anterior pituitary suggests itself as offering the best hope for the future, because of the striking effect on the follicle apparatus produced by the hormone of this gland. If the latter is made available for clinical use in some convenient form, its employment in certain cases of amenorrhea and sterility will be rational, although perhaps even with this the results may be disappointing. The oral administration of pituitary substances is probably without value. For the present, thyroid therapy, at times on rational indications, at times on empiric or semiempiric grounds, is still the most popular and perhaps the most frequently helpful plan in most cases.

Not much can be added as to the treatment of too frequent or too infrequent menstruation (polymenorrhea or oligomenorrhea) because of ignorance as to the nature of the factor or factors that normally regulate the menstrual rhythm. The treatment of oligomenorrhea is in general similar to that of amenorrhea and hypomenorrhea.

Excessive menstruation of functional nature (hypermenorrhea) is an extremely frequent and important disorder, especially in women at or near the menopausal age, because of the fact that, like other types of bleeding at this age, it calls for differentiation from that produced by cancer. For a discussion of this disorder the reader is referred to several previous papers. When potent corpus luteum extracts, such as that demonstrated recently by Corner and Allen, become available commercially, their employment in this condition will be rational and may possibly yield excellent results.

Some such system of nomenclature of menstrual disorder as that employed in this paper would seem worthy of general adoption. This would simplify records and indexes materially, through the elimination of such clumsy and circumlocutory terms as "too frequent menstruation," "deficient amount of menstruation," and the like. Various systems of naming these disorders have been suggested, but the one that seems most logical is as follows: amenorrhea, for the absence of menstruation; hypomenorrhea, for a deficient amount of the menstrual discharge; hypermenorrhea, for an excessive menstrual flow; oligomenorrhea, for too infrequent menstruation; polymenorrhea, for too frequent menstruation; dysmenorrhea, for painful menstruation. Various combinations of these terms are at times called for, and would be self-explanatory; viz., oligohypomenorrhea, oligohypermenorrhea, polyhypermenorrhea, and so on.

While the organotherapy of menstrual disorders is still unsatisfactory, the recent additions to our knowledge of the physiology of the sex cycle justify the hope that before long the problem can be approached much more intelligently and precisely than in the past. It would seem quite likely, for example, that the etiology of the various disorders will soon be determinable by studies on the biologic chemistry of the blood. In other words, just as quantitative determinations of blood sugar or blood urea can now be made, it will perhaps be possible to determine deficiency or excess of such principles as the ovarian follicle hormone, the anterior pituitary or thyroid secretions. These methods of course have already been used to some extent, but their refinement, simplification and wider utilization may make of organotherapy a more scientific procedure than it has been in the past.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ROWE AND NOVAK

Dr. J. P. Pratt, Detroit: The problem is indeed complex, for the human sexual cycle is so different from the estrous cycle of animals that it is hazardous to draw conclusions from animal experimentation until there has been a complete check in the human subject. The suggestion to adopt a standard terminology is timely. Confusion in the literature would be avoided. Function of the ovary, like other endocrine glands, is either normal, hypo or hyper. Reference to the function of the glands with internal secretion as a "chain of glands" or as being interrelated seems confusing. Would it not be better to think of each tissue or gland as composed of cells which have the ability to take out of the circulation and to utilize materials in a manner characteristic of the tissue or cell? The thyroid, for example, puts into the circulation a hormone which is a definite chemical substance. This is carried to all parts of the body by the blood. Each tissue or organ may utilize this hormone according to the ability of the individual cells to respond to it. The same is true of the other elements of the blood, such as iron or calcium. Thus in the case of the ovary and uterus, if the blood circulating through them does not contain a sufficient quantity of iron or calcium, or hormone of any of the various glands of internal secretion, the activity of the ovary or uterus will be affected accordingly. Since the hormones isolated from the various glands of internal secretion are definite chemical compounds, disturbances of function of these glands are either hypofunction or hyperfunction. In line with this interpretation it would seem that disturbances of function of the ovaries and uterus are due to too much or too little of some material in the circulating blood. However, not all instances of disturbed function are due to a deficiency of the same material; therefore the intelligent treatment of disturbance of menstruation would necessitate determining the lack or oversupply of the material responsible for the abnormality in each individual case. Until such methods of analysis of the blood are discovered, treatment will have to be continued empirically. As suggested, one of the best therapeutic agents for ovarian deficiency is thyroid. This apparently acts on the ovaries directly. I cannot share Dr. Novak's pessimism in reference to treatment of ovarian deficiency by the use of ovarian follicular hormone, for I have followed a small group of cases for a few years in which the combination of thyroid and ovarian follicular hormone has relieved oligomenorrhea and hypomenorrhea.

Dr. Carey Culbertson, Chicago: I take it that the menstrual irregularities which are of the greatest interest are those occurring in young women. Physicians are not so much concerned with the menstrual disturbances of the *older* woman who is approaching the climacteric, because an amenorrhea is expected at that time, and the treatment for excessive bleeding in those years is well known. It is in the young women who suffer from amenorrhea, irregular menstruation and excessive bleeding, whatever name is given it—I myself like the terms which Dr Novak has suggested, and have used them—also in the young women who suffer from dysmenorrhea, that the interesting problems are presented at this time, chiefly because dysfunction is not understood. I am curiously impressed in hearing Dr. Novak's paper by the fact that he makes no reference to the suprarenal glands. When I first began to study the endocrines twenty years ago, I had an idea, based on the work done then by Hoskins and others, that the suprarenals had a great deal to do with ovarian function. Today it is the anterior pituitary and the thyroid influence that is chiefly discussed, but more regarding the suprarenals may yet be heard. The ovary still seems to be, as I have thought of it for some years, an organ that requires stimulation in order to keep it functioning. But this evidently is true of the others as well. Where the stimulation comes from is the interesting thing, and how it is applied. Until that is known, ovarian dysfunction cannot be treated satisfactorily. Just as in studying the climacteric, so in studying these functional disorders of younger women one cannot get away from either the pituitary or the thyroid gland. That is the reason recourse has had to be made frequently, as Dr. Novak mentioned, to basal metabolic and to blood pressure studies. In this connection, I should like to emphasize that one blood pressure reading, one basal metabolic rate estimation is not enough. One has to make repeated estimations of metabolism and of vascular tension in order to understand best the condition to be treated. Theoretically, since the anterior lobe of the pituitary gland seems to be most influential in ovarian function, hypophyseal preparations should be of definite therapeutic aid, particularly in the amenorrheas. Such preparations as are offered, however, have been disappointing. An occasional case may appear to be benefited, but the majority are not.

Dr. Emil Novak, Baltimore: I am afraid that the trend of my paper has seemed much more destructive than constructive. I wish it could be otherwise and that I could suggest some simple and more or less infallible way of curing these functional disorders, but the limitations of this field must be, and should be, admitted. If there is to be advance, the weeds and underbrush must first be cleared away. Dr. Pratt believes he has had good results with the ovarian follicle hormone in some cases of disturbance of menstrual rhythm, although he said nothing as to its use in amenorrhea, which has been supposedly its chief field. As I stated in my paper, we know little as to the cause of menstrual irregularity. When it is moderate in degree, as when a woman menstruates every three weeks or every six weeks, it appears to make little difference to the patient. Thyroid extract is still perhaps the most frequently useful therapeutic agent in cases of amenorrhea, especially when obesity is associated with it. I have elaborated on this in my paper, which I presented only in abstract. There is much reason to feel enthusiastic about the future possibilities of gynecologic organotherapy but not much to inspire pride as to its accomplishments up to the present time.

"The Sleepy Arteries."—On what grounds the tortuous intracranial segments of the internal carotid arteries, whose branches enter the rete mirabile, came to be called "the sleepy arteries" is lost in antiquity, but for some reason or other the idea has prevailed that the function of sleep was ascribable to this region. There seemed to be something more in the idea than pure conjecture, but just what the mechanism of sleep and its alternate phase of waking might be was undetermined. Among theories innumerable, that there may actually be a diencephalic center for the process has been claimed, and the recent demonstration by Hess (1929) of a definite hypothalamic area in the cat stimulation of which will promptly induce a condition which is indistinguishable from sleep points suggestively in this direction. Then, too, we have had before us, these past fifteen years, the all too common examples of lethargy associated with encephalitis, a malady whose effects are prone to strike at this particular part of the brain as shown by other symptoms unmistakably hypothalamic in origin. . . . Thus it would appear that pathological sleep, and conversely of course abnormal wakefulness, in all probability are states induced by a disordered function of the hypothalamus.—Cushing, Harvey: Neurohypophysial Mechanisms from a Clinical Standpoint, Lister Memorial Lecture, *Lancet*, July 26, 1930.

ATROPHY OF THE LIVER DUE TO CINCHOPHEN PREPARATIONS [*]

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BROOKLYN

Except for the report of a case of atophan hepatitis by Worster-Drought [1] in 1923 and a fatal case of liver atrophy due to Weldona tablets demonstrated by Cabot [2] in 1925, actual knowledge of the toxic effect of cinchophen preparations on the liver dates from 1926. In a little more than four years, forty-one cases have been reported. Including my two cases previously reported and seven cases presented here, there is a total of fifty cases with twenty-five deaths and twenty autopsies, confirming the diagnosis of toxic hepatitis and liver atrophy as the cause of death.

It is highly probable that many cases have not been reported, and that many more cases of jaundice and liver atrophy would on careful investigation prove to be due to the previous use of the drug in one of its forms. This has been amply demonstrated by my own experience. The association of a jaundiced state or atrophy of the liver with the use of cinchophen preparations can no longer be considered a mere coincidence.

The discovery of the preceding use of a cinchophen preparation is the only diagnostic point, since symptomatology and pathology in no wise differs from similar parenchymatous damage of other causation. Toxic symptoms may arise while taking the drug or as late as two months after cessation (Cabot). Suspicion must always arise when questioning reveals previous suffering from joint, muscle or nerve pain. It is in the latter conditions that cinchophen preparations are being so much used. As a result of the extensive advertising claims as a safe analgesic, these preparations are being indiscriminately dispensed in tremendous amounts over the drug counter on request of the layman. Nothing can be further from correct than Hanzlik's [3] statement that, "since the [toxic] symptoms of cinchophen and its ethyl ester and neocinchophen are identical with those of salicyl, no further description is necessary," or Barbour, Lozinsky and Clements' [4] opinion that cinchophen appears to be devoid of side-actions.

CHEMISTRY

Cinchophen, chemically 2-phenyl-quinoline-4-carboxylic acid, was introduced about 1908. Rotter [5] states that it is excreted in the urine as hydroxyl-phenyl-quinoline-carboxylic acid and is therefore not decomposed in the body but excreted after slight oxidation. According to Willcox,[6] the toxic action arises from the quinoline nucleus, consisting of the benzene and the pyridine rings, which yield the toxic ring of free benzene. It is known that atoquinol, arsphenamine and trinitrotoluene all contain the benzene ring and are all capable of producing liver atrophy. Sollmann [7] says that benzene is relatively resistant to decomposition, only a little being oxidized and forming phenols and acids. Sutton [8] states that neither benzene nor phenol produces jaundice in overdoses, but that the nitrophenols (dinitrophenol, trinitrophenol or picric acid) and the nitrobenzenes (nitrobenzol and trinitrotoluene) all produce liver damage. He further believes that the liver is concerned in the decomposition of these products and that under certain conditions the oxidation of the quinoline nucleus produces highly toxic nitro compounds.

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[*] Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

1. Worster-Drought, C. C: Brit. M. J. **1:** 148 (Jan. 27) 1923.
2. Cabot, R. C.: Boston M. & S. J. **192:** 1122 (June 4) 1925.
3. Hanzlik, P. J.: Medicine **5:** 349 (Aug.) 1926.
4. Barbour, Lozinsky and Clements: Am. J. M. Sc. **165:** 708 (May) 1923.
5. Rotter, L.: Chem. Abstr. **12:** 2384, 1918.
6. Willcox, W. H.: Brit, M. J. **2:** 273 (Aug. 7) 1926.
7. Sollmann, Torald: Manual of Pharmacology, ed. 2, Philadelphia, W. B. Saunders Company, 1922, p. 569.
8. Sutton, D. C.: Acute Yellow Atrophy of the Liver Following the Taking of Cinchophen, J. A. M. A. **91:** 310 (Aug. 4) 1928.

PREPARATIONS

Phenyl-cinchoninic acid, atophan, novatophan, atophanyl, diiodoatophan, biloptin, oxyliodide, quinophan, agotan, neo-cinchophen, phenoquam, leucotropin, atophan-urotropine, fantan, iriphan, tolysin, weldona and farastan are all congeners of cinchophen. Atoquinol (atochinol) is a derivative of cinchophen.

PATHOLOGIC AND CLINICAL PICTURES

The amount of degeneration and compensatory regeneration of liver tissue varies with each individual case, thereby producing different clinical pictures. Transitional stages between reversible and irreversible liver damage are possible. So-called catarrhal jaundice has been shown by Eppinger and others to be mild hepatitis ending in recovery. When greater degeneration, necrosis and destruction of liver cells occurs, the condition might be called hepatolysis. When the destructive process is quite extensive, it might be spoken of as liver atrophy. For a more complete description of the various pathologic and clinical pictures under discussion, the reader is referred to my [9] original paper on toxic hepatitis following the use of atophan. These pathologic and clinical states probably do not differ in any way from similar states due to other etiologic factors, and depend entirely on the relative amount of atrophy, regeneration, cirrhosis and nodular hyperplasia. With longer duration, opportunity for regeneration with cirrhosis and nodular hyperplasia is given. There is great tendency to development after tonsillectomy and to fatality soon after exploratory laparotomy, due to surgical trauma, anesthesia and enforced starvation. Clinically there is no evidence of malignant neoplasm. Common bile duct stone is easily excluded when jaundice appears without pain and there is no past history of indigestion or colic. Knowledge of the selective affinity of cinchophen for the liver, the history of its use, and the absence of any other cause for the appearance of jaundice suggests the diagnosis. Numerous postmortem studies have established the truth of these statements.

CASES REPORTED IN THE LITERATURE

A man,[1] aged 59, received 18 Gm. of atophan during twelve days. When he developed urticaria, he stopped the drug for three weeks; then after again taking 0.5 Gm., he developed urticaria the next day and jaundice ten days later which lasted several weeks with recovery. This is the first case to be described in the literature.

A man,[2] aged 42, took three packages of weldona during six months. Two months later the patient had pains, colic, jaundice and indigestion. A physical examination revealed the liver just palpable, bile in the urine in five out of seven examinations, clay colored stools and a negative Wassermann test. Roentgenograms were practically negative The liver became smaller; ascites, some edema, hematemesis and pigmentation developed. There was no fever. The patient died three months later. Cabot mentions "having had an extraordinary series of cases of acute yellow atrophy in patients who have been taking this medicine called weldona." Postmortem examination revealed: acute toxic atrophy of liver, slight secondary cirrhosis, gastro-esophageal varices, ascites, hydrothorax, left serofibrinous pleurisy, edema of the legs and hemorrhages. This case has escaped the attention of those who have hitherto written on this subject. According to advertisements, weldona is stated in The Journal to contain neocinchophen, magnesium carbonate and cascara.[10]

A woman,[11] age not stated, took 5 cc. of atophanyl intravenously fifteen times; she stopped for three days, then took 0.5 Gm. of atophan three times daily for a month. She stopped the drug by mouth because of indigestion, then took some more injections followed by 0.5 Gm. of atophan twice daily for one month—a possible total of 83 Gm. Jaundice occurred, with recovery in several weeks. Not aware of Worster-Drought's and Cabots' cases, Klinkert erroneously believed his to be the first case of liver damage to be reported.

A woman, aged 55, took 70 Gm. of atophan, developed marked urobilinuria without jaundice, and recovered in four weeks. This case does not properly belong in this series, since the author is tabulating only severe cases of toxic action on the liver—such as have developed jaundice.

Langdon-Brown [12] reports two deaths due to atoquinol and states that he knows of two other fatal cases. Atoquinol is chemically allyl-phenyl-cinchonin ester and, though differing materially from atophan, contains the same toxic principle.

Graham [13] gives the details of these two deaths reported by Langdon-Brown. A woman, aged 69, took 12 Gm. of cinchophen weekly for ten weeks. She developed anorexia, vomiting and jaundice; some bile was found in her stools. The patient died the eighth day after admission to the hospital. An autopsy was performed. The other patient was a woman, aged 36, who took 130 Gm. of atoquinol within a period of five months. She stopped for one month and then took 22 Gm. The patient developed jaundice and died in ten days. There was no autopsy.

Evans [14] reports three cases, the age and sex not stated, due to atophan, each patient receiving about 15 Gm.—one case occurring on two separate occasions, once after only 1 Gm. All the patients recovered. He states that all preparations are equally toxic.

Glover [15] reports a case developing after ten atophanyl injections. The patient recovered.

A man,[16] aged 69, received 6 Gm. of atophan inside of one week. A few days later he became jaundiced. He was ill twenty-eight days and died. There was no autopsy. Willcox mentions, without giving any data, two other cases with recovery.

A woman,[17] aged 63, took 200 Gm. of atophan during four and one-half months. After she had been taking the atophan for three months she developed vomiting, and later jaundice. She died in coma on the tenth day of the jaundice. A postmortem was held.

A man,[18] aged 60, took 80 Gm. of atophan inside of two and one-half months. He developed ascites; he was ill three months and recovered.

A woman,[19] aged 31, received an intravenous injection of 5 Gm. of diiodoatophan (biloptin, 50.7 per cent iodine) for cholecystography, cholecystectomy for cholelithiasis and chronic cholecystitis next day. There were no stones in the hepatic or common bile duct and no injury to the common bile duct. The patient developed jaundice two days later; she was ill twenty-six days and discharged with slight jaundice and advanced anemia.

A woman,[20] aged 21, received an intravenous injection of diiodoatophan, developed toxic hepatitis the same day, and died ten days later. A postmortem was held.

A man,[20] aged 60, received diiodoatophan; toxic symptoms developed the next day. The patient recovered.

A patient [21] received diiodoatophan; toxic symptoms developed the next day. The patient recovered.

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[9] Rabinowitz, M. A M Clin North America **11:** 1025 (Jan) 1928.

[10] Weldona· A Piece of "Rheumatism Cure" Quackery, J A. M. A. **89:** 1167 (Oct 1) 1927.

[11] Klinkert, D Therap d Gegenw , July, 1926

[12] Langdon-Brown, W Brit M. J **2:** 37 (July 3) 1926

[13] Graham, George Proc Roy. Soc Med **20,** 1926-1927, part 3, Section Therap and Pharmacology, p. 258

[14] Evans, Geoffrey Brit M J. **2:** 93 (July 10) 1926

[15] Glover, L. G Brit M J. **2:** 136 (July 17) 1926.

[16] Willcox, W H Brit M J **2:** 273 (Aug 7) 1926.

[17] Wells, C J L. Brit M J **2:** 759 (Oct 23) 1926.

[18] Klinkert, D Klin Wchnschr **6:** 24 (Jan 1) 1927

[19] Kingreen O Deutsche med. Wchnschr **53:** 971 (Jan. 28) 1927

[20] Hitzenberger, H Wien Klin Wchnschr **40:** 205 (Feb. 17) 1927.

[21] Schwartz, G . Wien Klin. Wchnschr **40:** 235 (Feb. 17) 1927.

A woman,[22] aged 56, received diiodoatophan; symptoms developed the same day. The patient died. A postmortem was held.

A *man,[23] aged 32, received diiodoatophan; toxic symptoms* developed two days later. The patient recovered.

A man,[24] aged 54, took atophan in large amounts for a long period; after one month toxic symptoms developed. A laparotomy revealed no gallstones. There was atrophy and cirrhosis of the liver. Death occurred two days later. An autopsy was held.

A woman,[25] aged 52, was given 18 Gm. of atophan. When jaundice developed, the drug was stopped. Another physician represcribed atophan and the jaundice reappeared. The illness lasted six weeks. The patient recovered.

Toxic symptoms developed in a patient [25] after several tablets of atophan were taken. The patient recovered after an illness of forty days.

A woman,[25] aged 52, took forty-eight tablets of atophan. She recovered.

A man,[9] aged 33, took about 15 Gm. of atophan during five months. He recovered after an illness of three months.

A man,[9] aged 39, took 13 Gm. of atophan during about ten days; he was ill four weeks and recovered.

A man,[26] aged 47, took atophan, the amount and duration not stated, and died of acute yellow atrophy. An autopsy was held.

A woman,[27] aged 65, took a total of 60 Gm. of atophan within four weeks. Jaundice developed; she recovered in five weeks.

A woman,[28] aged 55, took large doses of atophan during six months. Jaundice appeared two weeks after the drug was stopped; the illness lasted one week, terminating in death. An autopsy was held.

A woman,[28] aged 55, took atophan for periods of three days with four day intervals, together with sodium bicarbonate during eight weeks. After an illness of five weeks the patient died. An autopsy was held.

A woman,[29] aged 55, took an atophan tablet three times daily for three weeks and died of acute yellow atrophy of the liver. *The case came to a coroner's inquest. Mention is also* made of another case of acute yellow atrophy due to atophan reported two months previously at the Liverpool Medical Society.

A woman,[18] aged 27, took at least seventy-five tablets of cinchophen over an unstated period, developed nausea, vomiting, constipation, urticaria, jaundice, small liver, ascites and died two and one-half months after the onset of jaundice following a Talma operation. A postmortem was held.

A woman,[30] aged 29, unmarried, took salicylates and atophan tablets. During this time she developed angina complicated by phlegmon from which she recovered without operation. Jaundice developed at the end of three weeks of atophan usage, with recovery at the end of one month.

A woman,[31] aged 27, took a total of 117 Gm. of cinchophen in two periods during two months. Jaundice disappeared after two months.

A woman,[32] aged 45, received atophanyl intravenously during a period of twenty-five days, followed nineteen days later by progressive jaundice, bile in the urine, enlarging liver, icteric index as high as 120 and later ascites. The patient recovered after a three months' illness.

A woman,[33] aged 37, suffered with toxemia in a previous pregnancy, followed by a run-down condition and aches. After about one year of an undetermined amount of atophan, indigestion and pruritus developed; two weeks later jaundice, epigastric and lumbar pain developed. Jaundice rapidly cleared up in three weeks. A cholecystogram was negative. Ten weeks later there occurred indigestion, vomiting, a slight ache in the epigastrium, jaundice, pruritus, erythema, enlarged spleen and fulminating toxemia. The patient died nineteen days later. A postmortem disclosed acute yellow atrophy.

A *man,[34] aged 55, given only 6 Gm.* of atophan within two days was ill three weeks. He recovered.

A woman,[35] aged 48, took 600 tablets of oxyl iodide (each tablet is 3 grains [0.2 Gm.] and contains 83.3 per cent cinchophen) during a period of seven months. Death from acute yellow atrophy after an illness of nine days was revealed by a postmortem examination.

A woman,[36] aged 20, took cinchophen since January; jaundice developed in May, a week after tonsillectomy, and lasted six weeks. With the recurrence of arthritis, large doses of cinchophen plus oxyiodide were given followed by fever, purpura, enlarged liver and enlarged spleen. The patient died. Postmortem examination revealed toxic cirrhosis of the liver.

A *woman,[36] aged 46, repeatedly took* large amounts of cinchophen over a period of three years. Death occurred on the tenth day after the onset of jaundice and cholemia. An autopsy was held. Reichle states that at the conference in the City Hospital in which one of his cases was presented, several physicians reported that they had seen jaundice during the period of medication with cinchophen.

A woman,[37] aged 52, had an epithelioma of the cervix of the uterus which extended onto the posterior vaginal wall. Radium treatments were given. From 1923 to 1929 the patient enjoyed excellent health. During the summer of 1929 she suffered with neuritic pains in the right thigh for which she took from one to three tablets of cinchophen daily for six weeks. She finally discontinued the medicine because of the appearance of nausea and vomiting, which developed one month after she had begun to take the drug. A week after she had stopped taking cinchophen, jaundice appeared suddenly, concomitantly with an attack of diarrhea which lasted only a day. The jaundice was intense from the beginning and did not fluctuate. There was no purpura or pruritus. *Her condition grew steadily* worse and she died sixteen days after the onset of the jaundice, with terminal hyperpyrexia and signs of bronchopneumonia. At postmortem examination the liver weighed only 903 Gm. Obstruction of the right ureter with hydronephrosis, was present, as the result of the previous malignant condition.

ADDITIONAL CASES

Case 1.—L. C. K., a woman, aged 37, whose father suffered *from asthma, had had one pregnancy followed by hysterectomy* for uterine fibroids nine years before. She had had aches and pains particularly in the feet for four years, and she was overweight. Her basal metabolism was —10. She was prescribed thyroid, ½ grain (0.03 Gm.), and cinchophen, 2 grains (0.13 Gm.), three times daily, which she took on and off without untoward results for two months. Basal metabolism was then —6, fasting blood sugar 79 mg. per hundred cubic centimeters. Thyroid, ⅔ grain, (0.04 Gm.) and cinchophen, 2 grains, three times daily were then given. One week later she felt tired and languid; two and one-half weeks later her urine became dark, soon to be followed by jaundice with itching. The liver was palpable, and she had lost 12 pounds (5.4 Kg.) *in the last three months.* The *spleen was never palpable.* The gallbladder a short time previously had been negative to cholecystography. On a high carbohydrate diet with insulin injections, jaundice rapidly disappeared; the liver was no longer palpable. The illness lasted about two months. The patient recovered and has remained well.

Case 2.—(service of Dr. Adolph Bonner, Jewish Hospital)—A woman, aged 31, had had asthma and hay-fever *a year before* she was seen, for which she received desensitizing injections. One month before admission she had a febrile upper respiratory infection which was followed by aches and pains in the back and shoulders, for which she was advised a 7½ grain (0.5 Gm.) tablet of atophan three times daily; she took a total of 20 tablets. In a few days after beginning the drug she

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22. Singer, S.: Wien. Klin. Wchnschr. **40:** 238 (Feb. 17) 1927.
23. Haudek, M.: Wien. Klin. Wchnschr. **40:** 239 (Feb. 17) 1927.
24. Rake, G. W.: Guy's Hosp. Rep. **77:** 229 (April) 1927.
25. De Rezende, Cassio: Brasil-med. **41:** 1005 (Sept. 24) 1927.
26. Weil, P.: Med. Welt **2:** 257 (Feb. 18) 1928
27. Klinkert, D.: Therap. d. Gegenw. **69:** 140 (March) 1928.
28. Lowenthal, L. J. A., and others: Brit. M. J. **1:** 592 (April 7) 1928.
29. The Danger of "Atophan," London Letter, J. A. M. A. **90:** 1229 (April 14) 1928.
30. Dassen, Rodolfo: Semana méd. **36:** 368 (Feb. 14) 1929.
31. Motzfeldt, K.: Norsk mag. f. lægevidensk. **90:** 283 (March) 1929.
32. Braun, L. I.: J. M. A. South Africa **3:** 157 (March 29) 1929.
33. McVicar, C. S., and Weir, J. F.: M. Clin. of North America **12:** 1526 (May) 1929.
34. Frenzel, W. C.: Wisconsin M. J. **28:** 264 (June) 1929.
35. Anderson, S. D., and Teter, D. P.: Acute Yellow Atrophy of the Liver Following Administration of Oxyl Iodide, J. A. M. A. **93:** 93 (July 13) 1929.
36. Reichle, H. S.: Toxic Cirrhosis of Liver Due to Cinchophen, Arch. Int. Med. **2:** 281 (Aug.) 1929.
37. Stacy, L. J., and Vanzant, F. R.: Minnesota Med. **13:** 281-267 (May) 1930.

developed weakness, followed in about two weeks by jaundice and dark urine containing a trace of sugar. She was admitted to the wards. The liver edge was 4 cm. below the right costal margin. Jaundice and itching became marked; there was no fever. The stools were clay colored but showed traces of bile from time to time; the icteric index was 70 on admission; a tetraphenolchlorophthalein test for the liver damage was positive. The blood Wassermann reaction was negative. Fasting blood sugar was 100 mg. per hundred cubic centimeters. Urine bile was present. There was no leucine or tyrosine. The gallbladder could not be visualized by intravenous injection of dye. No colics occurred. On admission, menstruation was overdue one week. The uterus gradually enlarged. A diagnosis of pregnancy was made, and because of her hepatic condition, therapeutic abortion was done. An examination of the curettings showed that pregnancy was present. Jaundice gradually cleared up, and she was discharged completely recovered in seven weeks.

Case 3.—(service of Dr. Soresi, Greenpoint Hospital).—G. C., a man, aged 45, suffered from generalized aches and pains for one month. Atophan was begun, Sept. 30, 1927, with a dosage of one tablet of 7½ grains three times daily. Feb. 8, 1928, four months later, this dosage was increased to a tablet every three hours. During this period (October 21, 25, November 2, 9, 21 and December 28) he had also received six injections of 5 cc. of Lactogen—a sterilized milk preparation—as parenteral protein therapy. December 28, the injection was followed by shock and he was admitted to the hospital and discharged the next day with the advice to continue the atophan. *February 17, it was noted that the patient was very weak and* at times he became unconscious for as long as three quarters of an hour. He had lost 55 pounds (25 Kg.) in the last year, *suffered epigastric pressure,* and was markedly jaundiced for four days. He was readmitted to the hospital. Ascites and hydrocele were present; the urine showed bile; the blood count was 19,000 white cells, *of which 80 per cent* were polymorphonuclears. There was no fever. The patient died six days later, and postmortem examination revealed normal pancreas, gallbladder and biliary passages. The liver weighed 1,100 Gm., showed marked pericapsular adhesions, cut with resistance, and on section revealed nodular hyperplasia with portal cirrhosis. There was *no evidence of cholangeitis.* The spleen weighed 225 Gm. and was normal. There were patches of purulent peritonitis.

The following case reports, heretofore unpublished, are from the service of Dr. Leo Kessel [38] of Mount Sinai Hospital, New York, Dr. Max Grolnick [39] and Dr. A. A. Stone [40] of Brooklyn, to whom I am indebted for the privilege of presentation and publication at this time.

Case 4.—(service of Dr. Leo Kessel [38]).—C. K., a woman, aged 51, complained of epigastric distress after meals for the past year, relieved by sodium *bicarbonate; she tired easily,* was markedly constipated, and suffered from severe pain in both knees, which became worse on motion. The diagnosis was chronic infectious arthritis, nasopharyngitis, infected tonsils and obesity. A tonsillectomy was performed, March 1, 1929. She was put on sodium salicylate and iodides, and atophan 5 grains (three times a day?) with instructions to take the prescription until the pain ceased. At a subsequent visit the medication was renewed. After four weeks the patient was bedridden and jaundiced. *For two days* there was severe abdominal pain in the right upper quadrant and epigastrium. She was admitted to the hospital, April 20. The last four days she had been restless and her eyes were glazed. There was twitching, followed by coma of twenty-four hours' duration. The patient was comatose and deeply jaundiced, with pitting edema of the ankles, and the liver was small to percussion. A provisional diagnosis of acute yellow atrophy of the liver was made. The blood count was: hemoglobin, 85 per cent; red blood cells, 4,700,000; polymorphonuclears, 90 per cent; platelets, 300,000; bleeding time, three minutes, and coagulation time, two minutes. A tourniquet test was negative. The blood pressure was 95 systolic and 50 diastolic. She died within twenty-four hours after admission. The autopsy observations were: subacute yellow atrophy of the liver, jaundice, edema of the ankles, parenchymatous degeneration of the heart and kidneys, tracheitis and bronchitis, obesity and hemorrhages in the skin and mucous membranes of the intestine, trachea and bronchi.

Case 5. (service of Dr. Leo Kessel [38]).—W. W., a patient, aged 26, married, after having constant indefinite complaints *for two years, developed six weeks before admission a fleeting* speckled rash, migratory polyarthritis, slight fever, chilliness and slight precordial pain. Cough developed three days before admission. Examination revealed good nutrition, infected tonsils and slight fever; the spleen was enlarged 3 fingerbreadths below the costal margin; the liver felt 1 fingerbreadth below *the costal margin; there was no swelling* or tenderness of the bones or joints; there were a few erythematous areas over the face, chest, hands and anterior area of the elbows, and there was a diffuse generalized lymphadenopathy. The blood count was: white blood cells, 11,700; polymorphonuclears, 82 per cent. Mellitensis agglutination and blood cultures were negative; a roentgenogram of the chest showed no abnormality; the urine on admission was negative. Atophan was given to relieve the joint pains, the patient receiving about 70 grains (4.5 Gm.) in all. *Tonsillectomy* was performed, followed by sudden jaundice, fever and a poor general condition. A liver function test showed a dye retention of 100 per cent in thirty minutes; the sedimentation time was two hours. The temperature rose to 105 F. and the patient died ten days *after the onset of the* jaundice, in spite of high carbohydrate diet and repeated infusions of dextrose. It was felt that the temporary deprivation *of food preceding the tonsillectomy was a factor in making the* liver more susceptible to the effect of the atophan.

May 29, 1930, Dr. Kessel, two of whose cases have been *reported, wrote: "I have seen a total of thirteen cases of* atophan poisoning."

Case 6 (patient of Dr. Max Grolnick [39]).—A woman, aged 45, who had never been pregnant and had suffered numerous infections, especially of the upper respiratory tract and the genitalia, developed arthritic pains for which she took weldona tablets. This was followed by backache. Two weeks later she again took six weldona tablets, followed the next day by backache, epigastric distress, bile in the urine, jaundice and clay-colored stools. *The taking of these tablets had been preceded* by intravenous injections of "some preparation made from the joint fluid" by another physician. Examination revealed obesity and jaundice. There was no fever. The liver was tender but not enlarged. There was bile in the urine: *the stools were* acholic; red cell hemolysis began at 0.32; the icteric index was 57. A Wassermann test was negative; gallbladder visualization was at first negative; *after recovery it was normal.* There was a rapid improvement and the patient was discharged in five weeks.

Case 7 (patient of Dr. A. A. Stone [40]).—A woman, aged 39, treated for six months with large doses of atophan for arthritis of the hip, developed progressive jaundice. An exploratory laparotomy was done *and the patient died on the table after* an illness of four months. Very small cirrhotic atrophy of liver (gross and microscopic) was found.

PREDISPOSITION

I believe that only under certain conditions does the liver *become sensitized to the toxic action of the* cinchophen preparations. The duration of its use and the total amount ingested or otherwise introduced into the body have been found to vary in each case, one person developing ill effects after a comparatively small amount, intravenously or by mouth, while another may not develop it until after long continuous use. De Rezende's second patient received only about 3 Gm., one of Kessel's patients, 4.5 Gm.

Predisposed are those with gallbladder disease, cirrhosis of the liver, pregnancy, chronic alcoholism, chronic nephritis, those who in the past have suffered from liver disease associated with jaundice, and those showing other evidences of cinchophen intolerance. The drug appears particularly dangerous in states of hepatic damage accompanying starvation, malnutrition, cachexia, chronic infection or tonsillectomy, after fevers, or in conditions favoring decreased glycogen content of the liver cells. Unger and others have definitely proved that under these conditions there is greater tendency to liver degeneration. Cinchophen, according to Taubmann,[41] is excreted in the bile and inhibits carbohydrate digestion, thus further favoring decreased liver glycogen storage.

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[38] Kessel, Leo: Personal communication to the author, May 1929.
[39] Grolnick, Max: Personal communication to the author, May, 1929.
[40] Stone, A. A.: *Personal communication to the author,* May, 1929.

A closer study leads to the suspicion that sensitization of the liver to protein, whether by surgical trauma, inhalation, ingestion, or parenteral injection (milk preparations such as lactogen and aolan or vaccines) renders it most susceptible to the toxic damage of cinchophen. Experiments are now under way to determine this point.

PRECAUTIONS

In spite of all the precautions hitherto advised, cinchophen therapy has proved dangerous. Intermittent use to avoid retention of dangerous amounts proved of no avail in cases reported by Klinkert, Langdon-Brown, Lowenthal and myself. Neither the associated intake of large amounts of fluid to aid more rapid elimination nor the use of large doses of sodium bicarbonate are certain guarantees. Large amounts of readily assimilable carbohydrates, given with small amounts of insulin, might protect the liver by restoring its glycogen content. It has been proved that carbohydrate without insulin is insufficient for this purpose. The intravenous use of cinchophen appears dangerous.

EARLIEST SIGNS OF TOXICITY

The drug should best not be used in ambulatory cases, as the earliest signs are thus likely to be overlooked. These warning signs are malaise, anorexia, nausea, vomiting, indigestion, pruritus, urticaria, albuminuria, pains about the liver, subicterus, tenderness of the liver, rise in the bilirubin content of the blood, bile pigment in the urine, marked urobilinuria, marked depression of the vasomotor system, purpura, scarlatiniform rash, or edema with fever.[42]

TREATMENT OF LIVER DAMAGE

With the earliest appearance of toxic phenomena, the drug should be stopped and the patient hospitalized. Dextrose by mouth or rectal drips in large amounts should be given, and from 5 to 10 units of insulin, three times daily ordered. If the symptoms are at all severe, intravenous injections of dextrose in large amounts should be given slowly as well. Proteins in the diet should be reduced to minimal amounts, as the liver is no longer fully capable of detoxicating the products of protein metabolism. Adler, according to Weigeldt,[43] advises the use of a combination of lactic acid, saline solution, dextrose and insulin together intravenously in the severest cases of liver atrophy, with the object of sparring for time until the necessary regeneration of the liver tissue occurs. As a last resort, Petermann of Berlin advises surgical drainage of the hepatic or common bile ducts. I have employed duodenal instillations of magnesium sulphate solutions, together with high carbohydrate diet and insulin injections.

CONCLUSIONS

1. Cinchophen preparations may produce liver damage of varying severity to fatality.

2. This danger cannot be avoided by small doses, intermittent use, large amounts of fluid or associated use of sodium bicarbonate.

3. Since cinchophen is not a specific for arthritis, gout, myositis, neuritis or allied states, indiscriminate use and counter prescribing is dangerous, and the drug or its congeners should not be used in cases difficult of careful control and observation.

4. All cinchophen preparations and congeners should have their content advertised and noted on the container in which they are dispensed.

5. Protein sensitization of the liver may be responsible for the subsequent production of the liver damage by cinchophen.

6. Research work is needed to determine the factors in the production of liver damage and to prevent this dangerous effect.

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ABSTRACT OF DISCUSSION

Dr. Torald Sollmann, Cleveland: Time does not permit more than a brief glimpse of the more scientific problems that are suggested by Dr. Rabinowitz's presentation: the attempt to protect the liver by carbohydrates, reinforced by insulin, sounds reasonable. Its actual efficiency, however, cannot be decided until it is possible to furnish controls and this will probably require animal experimentation. This in turn is difficult because of the capriciousness of the hepatitis.

A hint is furnished by the promptness and frequency of the hepatic reactions from the intravenous injection of di-iodo-atophan (Biloptin) for choleography. This may be in line with the suggestion of Dr. Rabinowitz, that hepatic disorders predispose to cinchophen hepatitis, and suggest the possibility of its experimental production by combination with subeffective doses of other hepatitic agents, such as carbon tetrachloride. If this is successful it will furnish the possibility of testing the treatments. It will give a means for attacking the mechanism of the hepatitis; this may enable us to avoid such reactions.

At present, we are very much at sea. The liver seems to go the even tenor of its way through a great variety of major disturbances of the organism but goes completely to pieces under circumstances which would be considered much less violent; particularly in response to a miscellaneous variety of poisons. It would be interesting to learn how this is correlated with chemical structure. The relation is probably not directly to the benzene nucleus, as was suggested in the speculation of Willcox; at least, the action has not been demonstrated for most of the benzene derivatives and is much more marked with some aliphatic compounds, such as chloroform, carbon tetrachloride, and with phosphorus. It is quite possible, however, that these various hepatites may differ in nature as well as in causation.

Dr. Philip S. Hench, Rochester, Minn.: In the past, one has felt fairly secure in giving alkalis and rather large amounts of water when using atophan or cinchophen, but apparently these measures are not sure safeguards. Four patients have been brought to the Mayo Clinic with acute yellow atrophy of the liver. These patients had taken cinchophen elsewhere, not in large amounts, for fairly short periods of time, and on physicians' prescriptions. Two had had associated treatment with alkalis. One had used oxyliodide, one had had oxyliodide and another product containing cinchophen. Two had felt safe in using only the so-called best brand of cinchophen. At least one other patient had toxic hepatitis but recovered. Our patients did not relate, after careful questioning, any past experience that would lead us to suspect that their livers had been injured earlier in life, nor at necropsy did the microscopic examination reveal any evidence of previous hepatic disease. Two years ago, Dr. E. V. Allen and I, in spite of ample evidence of minor disturbances and occasional serious results, nevertheless gained the impression, in view of the wide use of this drug, that minor disturbances resulted in only a very small percentage of persons who use it and that but a fraction of 1 per cent die from its use. The review by Dr. Rabinowitz will stimulate the attempt to answer several questions. Why was the toxicity of cinchophen so long unreported? Has there been a change in manufacturing? Are certain products really less toxic than others? Are certain batches of the drug itself toxic, or do only certain patients illustrate altered catabolism? If continued use of cinchophen is to be advocated, these questions should be answered. Many patients have large tolerance. One patient whom I had under observation for fifteen and a half years had taken from 40 to 90 grains (2.5 to 6 Gm.) of cinchophen daily, with no apparent discomfort or disability. Two and a half years later, under the observation of Dr. Haden of Kansas City, he still insisted on taking cinchophen for his arthritis. Hence, his amazing tolerance has continued for a period of eighteen years, which almost equals the entire history of treatment by cinchophen.

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[41] Taubmann, Gert: Arch. f. exper. Path. u. Pharmakol. **121**: 204 (March) 1927.

[42] Schroeder, K.: Ugesk. f. læger **84**: 1141 (Sept. 7) 1922.

[43] Weigeldt, W.: Klin. Wchnschr. **9**: 285 (Feb. 8) 1930.

DR. ALEXANDER LAMBERT, New York: The peculiarity of the acute yellow atrophy due to cinchophen is so striking when one sees a case that I feel constrained to report one that occurred in Bellevue about two years ago, in the ordinary practice of a medical ward. The patient came in, pale, but under the paleness there was an increasing jaundice. He reported that he had had rheumatism, meaning pain in some joint or somewhere, and that he had taken what was to him a well known rheumatic remedy, the Harrell "Rheumatism Cure," which had been given to him by a neighbor, which had done that neighbor a great deal of good. He had taken evidently large amounts because he had taken it for eighteen months or two years. His jaundice rapidly increased and his fever rapidly increased. He died of acute yellow atrophy in a few days. I wrote to the American Medical Association and found that this rheumatic remedy contained large amounts of cinchophen and it was one of those cinchophen acute yellow atrophies. The reason that I think acute yellow atrophy is much less often diagnosticated is that the beginning of acute yellow atrophy is not of the stormy type that physicians have been taught to expect and, further, that jaundice in the majority of cases is diagnosticated as acute catarrhal jaundice. I know that this diagnosis must be universally taught because in the Fourth Division of Bellevue our interns come from all over the country and the invariable diagnosis of a slight jaundice by all kinds of interns taught by all kinds of teachers for many years has been acute catarrhal jaundice, which is the last thing usually that happens to a jaundiced patient.

DR. L. G. ROWNTREE, Rochester, Minn.: I wish to ask one question. What are we going to do about it? I have seen these cases in Rochester, and have seen the patients die despite everything we could do. I saw the patient, referred to by Dr. Hench, who had then been taking cinchophen for thirteen years. He asked me at the time about its toxicity. I told him I knew of no one who had taken so much. He insisted on taking it, as he said that it was the only thing that gave him relief from pain. I am asking the question as to whether there is in existence any mechanism for having this problem properly investigated. It would seem to me the most likely thing would be to have it taken by the officers of this section to the House of Delegates for consideration. I believe it is a sufficiently important problem to the health of the people to merit thorough investigation.

DR. WILLIAM S. COLLENS, Brooklyn: Dr. Sollmann recommended a scientific investigation of Dr. Rabinowitz's suggestion in regard to therapy. I should like to state the results of some experiments which Dr. Murlin and I conducted at the University of Rochester about two years ago that have a definite bearing on the therapeutic value of dextrose and insulin. In some experimentally produced degenerative changes in the liver by means of ligation of the hepatic artery we studied the value of dextrose intravenously in these dogs, using the respiratory quotient as a criterion or an index of its utilization, and we found that dextrose was not at any time utilized unless insulin was given along with it. That fairly confirms scientifically we think the suggestion that Dr. Rabinowitz makes about the value of insulin when dextrose is administered even to nondiabetic subjects. We have since had occasion to carry on the same experiments in patients who had cholecystectomies performed and who also showed, on resection of wedge-shaped sections of the liver for histologic studies, definite hepatitic changes such as were reported some years ago by Dr. Evarts Graham of St. Louis. We found there again that the respiratory quotient determinations following intravenous dextrose did not show any rise unless insulin was administered. This fairly well proves the value of Dr. Rabinowitz's suggestion that insulin administered with intravenous dextrose has a protective effect on a liver which is definitely degenerated.

DR. M. A. RABINOWITZ, Brooklyn: In answer to Dr. Rowntree's question, I had omitted part of a paragraph of my paper on the treatment. Adler, according to Weitgeldt, advises the use of a combination of lactic acid, saline, dextrose and insulin together intravenously in the severest cases of liver atrophy, with the object of sparring for time until the necessary regeneration of liver tissue occurs. As there is no organ in the body that has such capacity for regeneration as the liver, sparring for time might make it possible to save the patient. As a last resort, Petermann of Berlin advises surgical drainage of the hepatic or common bile ducts. This does not appear to me from a medical point of view as a most rational procedure, but he does report good results in severe liver atrophies of other causation.

STUDIES IN INFANT NUTRITION

VI. LACTOSE AND A MALTOSE-DEXTRIN PREPARATION *

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CHICAGO

The studies have been carried on for eight years. They fall into two groups, chemical and clinical. The chemical work was done under the supervision of Dr. Chi Che Wang with the technical assistance of Miss Agnes A. Wood. All cow's milk was boiled one minute. The babies were normal infants more than 2 weeks of age, kept in a separate nursery, with special nursing provided by the hospital administration and the training school. Thus the infants escaped most of the parenteral infections so prevalent in any infants' ward. Experiments were never carried on when the babies were losing weight or seemed sick in any way.

PURPOSE OF THE WORK

According to the early theories of Finkelstein and L. F. Meyer, a diet containing excessive carbohydrate in cow's milk favored the development of diarrhea and nutritional disturbance. The mechanism was simple. Bacteria normally present in the intestine fermented the carbohydrate into various products, among these being lower volatile fatty acids, such as acetic and formic. Irritation of the intestine by these acids resulted in diarrhea, which in turn led to a disturbance of nutrition.

These theories found universal acceptance. Surprisingly little scientific work was done to confirm them. Ten years ago I thought it would be a simple matter to subject the hypothesis to chemical proof. One could prescribe a diet low in carbohydrate and determine the acids in the stool. Then the carbohydrate could be increased and the acids again determined. Unquestionably the increased carbohydrate would lead to increased intestinal fermentation and

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* A summary of work done up to July, 1929. All routine urinalyses were done by one of our interns, Dr. M. L. Spivek.

* Read before the Section on Diseases of Children at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930

* From the Sarah Morris Hospital for Children, the Otto Baer Fund for Clinical Research and the Nelson Morris Institute for Medical Research of the Michael Reese Hospital.

increased acid output. The whole theory would then become a fact. The ideal carbohydrate for such experiments would, of course, be lactose.

LACTOSE IN INFANT NUTRITION

Discovered in the seventeenth century, lactose remained unmolested for 200 years. Then it became the target of the pediatricians. Before Escherich,[1] in 1886, had started his pioneer work on intestinal fermentation, Jacobi[2] had voiced his fear of the sugar because of the ease with which it changed to the dangerous lactic acid. From that time, although it is the sugar found normally in breast milk, its reputation in artificial feeding sank lower and lower.

Early writers[3] were not so concerned with its fermentability as with the impurities it contained. This fear was voiced by Brush[4] at a meeting of this section held at Nashville, Tenn., in 1890. He wrote, "Something must be wrong with some types of lactose because one does not find it in the urine of the breast fed." He found it in the urine of three artificially fed children. The metabolic conception of nutritional disease developed long afterward. Better methods of isolating lactose, devised by Soxhlet in 1893, did away with this objection.

New dangers were ascribed to lactose by Finkelstein and Meyer,[5] in that it exerted a specific pyrogenic action on the body. Schlutz,[6] in 1912, confirmed these experiments when lactose was given with sodium chloride.

At present it is safe to state that lactose is feared by all pediatricians chiefly on account of the ease with which it ferments in the intestine. Every textbook contains the same statement (Escherich, Czerny-Keller, Langstein and Meyer, Finkelstein, Feer, Heubner, Brennemann, Holt, Grulee). Individual studies[7] have offered the same conclusions, that lactose may be used in a normal infant but only with extreme care. A few writers[8] speak an occasional kind word for the sugar but Morse and Talbot, who certainly are the most friendly, warn that it should never be used in amounts over 7 per cent.

Clinical experience plus uncritical acceptance of the teachings of Escherich seem to have influenced most opinions.

Up to the latest writings the question is still disputed. Barenberg and Abramson[9] in the clinic of Alfred Hess have been daring enough to report excellent clinical results with lactose in infants more than 3 months of age. On the other hand, Paffrath[10] gave children solutions of various sugars and found lactose alone was responsible for diarrhea. Marriott in his new book reiterates the warning that lactose "cannot be used with as great safety or fed in as large amounts as other carbohydrates."

The preponderance of evidence then suggests that if one wishes to study nutritional disturbance arising from intestinal fermentation and diarrhea, lactose should be the ideal carbohydrate to use.

CHEMICAL RESULTS

These studies,[11] so simple in their inception, have taken ten years and are still under way.

Charts of the entire chemical and clinical study have been displayed in the scientific exhibit.

Time permits the demonstration of only a few to show some of the high points of the work.

With the stools of normal breast-fed infants taken as a standard, studies have been made of the stools of clinically normal infants while on cow's milk feedings, as well as of the stools of diarrheal children, both on breast and on cow's milk.

The stools of infants fed on whole cow's milk, who are clinically normal and do not give a clinical picture of diarrhea, compare as follows with those of normal breast-fed babies:

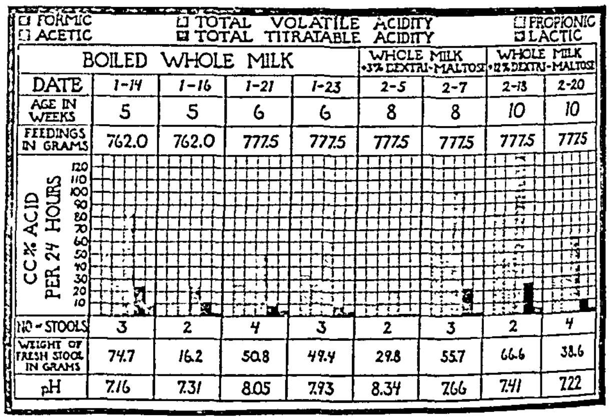

Chart 1.—The influence of the addition of 3 and of 12 per cent of the maltose-dextrin preparation to whole boiled cow's milk on the quantity of feces, the frequency of defecation, the excretion of total volatile acids and their salts, on total titratable, lactic acids and lactates, and on the hydrogen ion concentration, in a normal infant.

The stools of artificially fed babies are of greater weight for the twenty-four hour period. There is a somewhat greater output of lower volatile fatty acids and their salts, with a somewhat lowered output of lactic acid and lactates. The free acid, as shown by the total titratable acidity of the twenty-four hour specimen, is lower. The p_H (which represents "true" acidity) is considerably higher than that of the stools of the breast fed. Infants fed on cow's milk often pass nearly neutral or even slightly alkaline stools.

When infants fed on breast milk develop the clinical picture of diarrhea, they show an increased frequency of stools, with a small increase in their weight. The excretion of volatile fatty acids and their salts is slightly increased, as is also the excretion of lactic acid and lactates. The twenty-four hour figure for "total" titratable acidity is also increased. There is very little change in the p_H, which is the measure of the "true" acidity.

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[1] Escherich, T.: Darm Bacterien der Sauglings, Stuttgart, F. Enke, 1886.

[2] Jacobi, A., in Gerhardt's Handbuch der Kinderkrankheiten, Tubingen, H. Lauppschen Buchhandlung **1**: 409, 1877.

[3] Pehu and Porcher: Arch. de méd. d. enf. **14**: 113, 1911; Lyon med. **114**: 989, 1910.

[4] Brush, E. F.: *The Use of Commercial Milk Sugar in Infant Feeding*, J. A. M. A. **15**: 17 (July 5) 1890.

[5] Finkelstein, H.: Jahrb. f. Kinderh. **65**: 1, 263, 1907; **68**: 521, 1908; Deutsche med. Wchnschr. **35**: 191, 1909. Finkelstein, H., and Meyer: Jahrb. f. Kinderh. **71**: 525, 1910; Berl. klin. Wchnschr. **47**: 1165, 1910.

[6] Schlutz, F. W.: A Study of the Pyrogenic Action of Lactose, *Am. J. Dis. Child.* **3**: 95 (Feb.) 1912.

[7] Helmholz, H. F.: Arch. Pediat. **28**: 273, 1911. Jacobi, A.: Tr. Am. Pediat. Soc. **13**: 150, 1901. Fornari, F.: Ann. de méd. et de chir. inf. **6**: 397, 1902. Pehu and Porcher (footnote 3).

[8] Talbot, F. B., and Hill, L. W.: Influence of Lactose on the Metabolism of an Infant, with Special Reference to Fat Nitrogen and Ash, Am. J. Dis. Child **8**: 218 (Sept.) 1914. Porter, Langley; and Dunn, C. H.: Sugar in Infant Feeding, *Am. J. Dis. Child.* **10**: 77 (Aug.) 1915, and Arch. Pediat. **32**: 372, 1915. McCleave, T. C.: Interstate M. J. **24**: 569 (June) 1917.

[9] Barenberg, L. H., and Abramson, H.: Arch. Pediat. **47**: 1 (Jan.) 1930.

[10] Paffrath, H., and Kaess, Alfons: Ztschr. f. Kinderh. **48**: 67, 1929. Paffrath, H., and Siering-Kaulla, Hilde: Ztschr. f. Kinderh. **48**: 76-86, 1929.

[11] Gerstley, J. R.; Wang, Chi Che; Boyden, R. E., and Wood, Agnes A.: Influence of Feeding on Certain Acids in Feces of Infants: Comparison of Effects of Breast Milk and of Modified Cow's Milk on the Excretion of Volatile Acids, *Am. J. Dis. Child.* **35**: 580 (April) 1928; Id.: Effect of Excretion of Lactose in Breast Milk and in Modified Cow's Milk with Observations on Parenteral Infection, ibid. **36**: 289 (Aug.) 1928. Gerstley, J. R.; Wang, Chi Che; and Wood, Agnes A.: Id.: III. Comparison of Effects of Breast Milk and of Whole Cow's Milk on the Excretion of Volatile Acids and of Lactic Acid, ibid. **39**: 487-729, 1930. Gerstley, J. R.: Id.: V. Clinical Considerations, ibid. **40**: 27 (July) *1930.*

The stools of infants fed on cow's milk who develop diarrhea show a markedly contrasting picture. There is a great increase in weight of the stools, and a correspondingly great output of volatile acids and their salts, as well as of lactic acid and lactates. The figure for "total" titratable acidity is increased; however, the p_H remains toward the alkaline side, just as it does in normal babies fed on cow's milk. The older clinicians, considering figures for "total" titratable acidity, believed the stools of diarrheal children to be "very acid"; p_H measurements (which give "true acidity" as judged by the hydrogen iron concentration) show this concept to have been erroneous. The stools of infants fed on cow's milk are less acid than those of breast fed infants, whether they are diarrheal or not.

As cow's milk contains only 4 per cent lactose and breast milk 7 per cent, factors other than the *amount* of lactose in the diet determine how much of this lactose shall ferment. Unquestionably the problem becomes *one of factors influencing lactose absorption.*

What changes take place when lactose is added to whole cow's milk?

In a typical case the addition of 3 per cent lactose causes no great change in the picture of stool chemistry, except in hydrogen ion concentration. In infants with no diarrhea the addition of 3 per cent lactose increases the total titrable and lactic acids. Clinically the children seem much happier.

Changing to 12 per cent effects a noticeable chemical change but, to one's astonishment, exactly the antithesis of the one expected. The longer the child is on the mixture, the less is the quantity of acid excreted and the more do the stools resemble those of the breast fed. Apparently the relation of lactose to protein, approximately 4 to 1, like that existing in breast milk, is most favorable to intestinal processes. In my desire to produce diarrhea experimentally by increasing the quantity of lactose in the diet, I was unconsciously bringing about a relation of lactose to protein which proved actually beneficial.

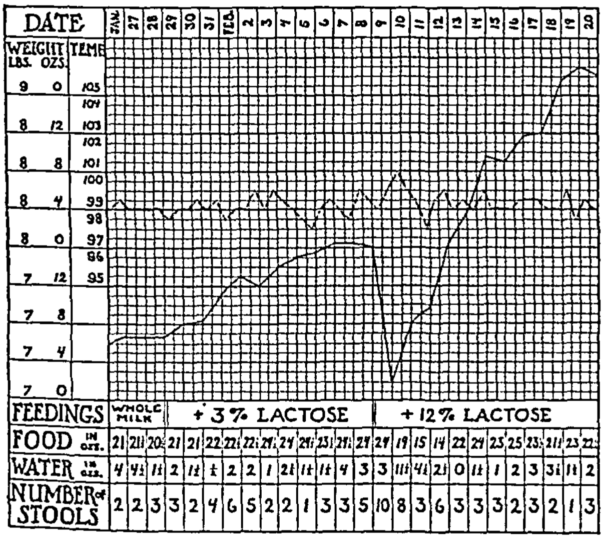

Chart 2.—This and chart 3 show that a diet of whole cow's milk with the addition of 3 per cent and later 12 per cent lactose continued over a number of weeks led to a severe loss of weight but with no diarrhea.

Chart 1 shows the effect of adding a preparation of maltose and dextrin[12] with 2 per cent sodium chloride to whole boiled cow's milk. It is introduced to show the slight effect that this carbohydrate exercises on the stool picture of whole cow's milk. In this chart the differential analysis for volatile acids can be disregarded.

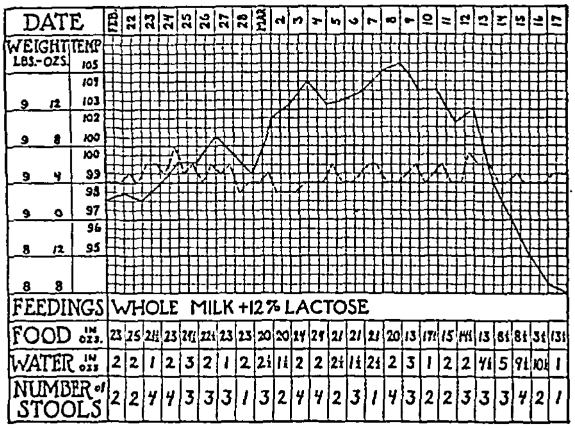

Chart 3.—This and chart 2 show that a diet of whole cow's milk with the addition of 3 per cent and later 12 per cent lactose continued over a number of weeks led to a severe loss of weight but with no diarrhea.

On whole cow's milk the stools are small, contain small amounts of free acid, little lactic acid and lactates, and show a hydrogen ion concentration toward the alkaline. Clinically the baby was constipated.

The addition of 3 per cent of the maltose-dextrin preparation causes little change except some increase in the total volatile acids and their salts.

To our surprise, the addition of 12 per cent of the maltose-dextrin preparation has almost no effect on the total free acid, lactic acid and lactates, stool weight and frequency, and hydrogen ion concentration, while there is a possible increase in the total volatile acids and their salts.

In this respect, the maltose-dextrin preparation is in striking contrast to lactose, and our analyses confirm its constipating alkalizing effect in the intestine.

LATER THEORIES

During the years that these experiments were being conducted, Finkelstein and Meyer modified their views. From clinical observation Finkelstein, in his book of 1921, believes that cow's milk causes a primary injury to the *intermediary metabolism,* and following such injury diarrhea develops as a secondary complication. Thus intestinal fermentation with resulting diarrhea becomes a result of disturbance of nutrition rather than a cause.

CLINICAL STUDIES

Our clinical studies favor the later hypothesis. After being convinced that lactose was not as dangerous as I had thought, and that in a well baby on a diet of whole cow's milk, a proper lactose-protein relationship improved diarrheal stools, I tried feeding a number of infants on whole cow's milk with 12 per cent carbohydrate.

Charts 2 and 3 show the clinical course of such a case. On whole cow's milk with 3 per cent lactose the infant thrived beautifully. A change to 12 per cent caused a temporary upset, but with no change of diet he recovered in twenty-four hours. Then for a period of weeks he became one of the show babies of the hospital. I thought I had discovered the real secret of infant feeding. One day with almost no warning he developed an alimentary intoxication. No parenteral infection could be demonstrated. The diagnosis was confirmed by a twenty-four hour tea diet with a resulting straightening of the weight curve. The critical loss of weight could scarcely have been due to decreased food intake, for complete starvation caused recovery. Of particular importance in this case was the *absence* of diarrhea. Such evidence is almost conclusive that the severest types of nutritional disturbance, even alimentary intoxication, can develop without gastro-intestinal involvement.

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[12] The preparation used was Mead's dextri-maltose.

Chart 4 shows another striking clinical reaction. This baby had been on whole cow's milk with 12 per cent of the maltose-dextrin preparation for more than a month. Like the baby on lactose, he seemed in the best of health. Following the conclusion of the chemical experiments he was put on a diet of two-thirds cow's milk with 5 per cent of the maltose-dextrin preparation and discharged from the hospital. During the two weeks spent in trying to find a home for him he developed a mild otitis media. This infection, certainly not virulent clinically, precipitated the profoundest nutritional disturbance. Again the severest nutritional reaction is seen occurring without marked gastro-intestinal involvement. These studies certainly favor the Finkelstein hypothesis that injury to the general nutrition often precedes signs of intestinal fermentation.

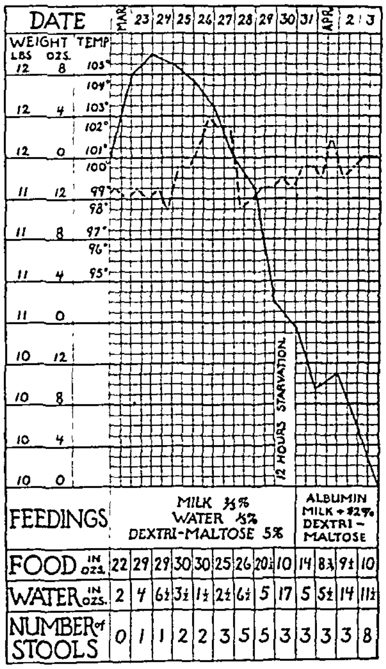

Chart 4.—Alimentary intoxication induced by a very mild otitis media in an infant who had been on whole boiled cow's milk with 12 per cent of the maltose-dextrin preparation over a period of weeks. Diarrhea occurred only as a terminal complication.

COMMENT

The experiments are thus clearly divided into two groups.

Chemical studies have shown that lactose per se does not deserve its bad reputation. It can be given to a normal infant in good hygienic environment without undue risk, even with the additional digestive strain of whole cow's milk. If intestinal fermentation and diarrhea arise, they are not proportionate to the amount of lactose in the formula. Unquestionably some other element of cow's milk, probably by delaying lactose absorption, and thus permitting a greater total bacterial growth and increased fermentation, or by increasing peristalsis plays a great rôle. The relation of lactose to protein seems important. From studies previously reported,[11] parenteral infection plays the greatest rôle of all. Secondary in importance only to parenteral infection in influencing stool chemistry is the child's general nutrition.[11] The amount of lactose in the diet is not nearly as important as the factors which influence its absorption.

In regard to the maltose-dextrin preparation, the analyses of the stool showing low total and lactic acids and hydrogen ion concentration toward the alkaline confirm the clinical observations of its constipating tendency. Its value in true nutritional disturbance is not under discussion. When given to the normal infant in a mixture of cow's milk it results in changes in stool chemistry *further from that of the breast fed than does lactose.*

The second series of experiments, while offering clinical corroboration of some of the theories of nutritional disease, has raised a question which is still unanswered, which I doubt whether the experience of any one observer can answer. Whether the success of lactic acid milk is due to the lowering of the buffer as Marriott claims, or whether the fine curd is a factor as Brennemann recently suggested,[13] in either case the theory of the success of the mixture is in its digestibility. In our work whole cow's milk with carbohydrate seemed to effect a change in the infant's body predisposing to severe nutritional disturbance, and causing him to show the severest nutritional reaction following the mildest parenteral infection. These changes were independent of any gastro-intestinal disturbance. If normal stools can be taken as evidence, our mixtures were digested perfectly.

The addition of lactic acid to milk may make the mixture more digestible, but does it take away any of the factors which in our experiments seem to injure the body? It is significant that while pediatricians in this country discussed the effects of parenteral infections over fifteen years ago,[14] and in Germany long before that, no one fears them as does the St. Louis school. Is it possible that lactic acid milk plus high carbohydrate favors the development of nutritional disturbance following parenteral infection? This is just a thought which has occurred to me and I am putting it as a question. It is a question which cannot be solved except by the combined activities of all of us. The babies I studied were in a hospital. Perhaps if they had been at home with their mothers they would not have sickened on these diets. At any rate, I am bringing up the question in the hope of enlisting cooperation in seeking an answer.

It is interesting to reflect that in our ignorance we have blundered into efficient methods of milk modification. Empirically we keep an approximately favorable carbohydrate-protein ratio and in addition our milk dilutions prevent the dangers of overfeeding.

CONCLUSIONS

The conclusions can be divided into two groups:

A. Chemical studies show that:

1. Lactose added to whole boiled cow's milk does not result in diarrhea with a great increase in the excretion of acids when given to normal infants.

2. The amount of various acids excreted by the intestine does not depend directly on the amount of lactose in the diet but on various factors which are probably concerned in its absorption from the intestine. The relation of lactose to protein in the diet is of great importance.

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13. Brennemann, Joseph: Curd and Buffer in Infant Feeding, J. A. M. A. **92**:364 (Feb. 2) 1929.

14. Day, A. A.; and Gerstley, J. R.: A Study of Certain Cases of Infantile Diarrhea During the Summer of 1914, Am. J. Dis. Child. **9**:233 (March) 1915. Gerstley, J. R.: Arch. Pediat. **33**:671 (Sept.) 1916.

3. In respect to certain chemical relationships in the stool, lactose seems preferable to the maltose-dextrin preparation.

B. Clinical studies, dealing with the development of nutritional disturbance, favor the Finkelstein hypothesis that cow's milk causes a primary injury to the intermediary metabolism. Should intestinal fermentation and diarrhea develop, they are secondary and incidental to the primary disturbance of body nutrition. The severest nutritional disturbance may exist, even alimentary intoxication, without gastro-intestinal involvement.

ABSTRACT OF DISCUSSION

DR. F. W. SCHLUTZ, Chicago: The carefully conducted experiments of Dr. Gerstley go far to reestablish confidence in a food substance which for quite unaccountable reasons had fallen into considerable disrepute as a carbohydrate component for the infant's food. It is always difficult to reconcile this attitude with the fact that this particular sugar is native to human and all forms of animal milk that are used in infant feeding. I think Dr. Gerstley has quite conclusively shown that it is entirely safe even in large percentages and that its metabolism generally proceeds in a favorable manner. Whether this sugar is superior to other sugars is not quite clearly brought out and will, I believe, need quite a little further experimental evidence. Dr. Gerstley's work is interesting from another point of view in that it furnishes experimental data in confirmation of recent clinical experience, that high sugar percentages in the infant's food are not dangerous but may even have the reverse effect from the one that was generally expected and formerly predicted. The pediatrician today seems to have passed from the era of low sugar feeding to one of high sugar feeding. All this has given a changing concept of the mechanism and the factors which probably underlie, and are largely responsible, for the development of the dangerous diarrheal state. Dr. Gerstley pointed out some of these factors and suggested the thought and expressed the opinion which many have that, in the development of the dangerous state of alimentary intoxication, the carbohydrate component of the diet is only quite indirectly concerned. The picture of severe intoxication without the development of diarrhea which he showed in some of his charts is one with which many are familiar. I believe that studies of the kind Dr. Gerstley has made are greatly needed in the pediatrics and medicine of today. I think they will go far to replace theory by fact and feel that they will help in the finding of reasonable explanations for what in the past were so commonly empiric procedures.

Biologic Basis of Human Nature.—It is known that each of the thousand genes is a distinctive substance, having a definite function, a particular work to do in producing the new individual; so that if any one of them is destroyed or changed, development is altered in a definite way, and the resulting individual shows a corresponding change in his characteristics: a change perhaps in the color of his eyes, the shape of his nose, his stature; or in his temper or temperament. It is known that each different kind of a gene has its regular and invariable place in the string. Thus the different genes can be named or numbered, and a particular one is always the same gene, with the same rôle to play, and found at the same place in the chromosomes. . . . Each of our parents gives us a complete set of genes, strung up in the way we have described. So we have in every cell two such strings of genes, each one complete in itself. We are therefore double with respect to our genes. Each of the two sets in a cell contains all the materials that are necessary for producing an individual: a fact that has strange consequences. The mother gives us all the materials required for producing an individual of a certain type; the father also gives us the materials for producing another individual of another type. So we start life as double individuals.—Jennings, H. S.: The Biological Basis of Human Nature, New York, W. W. Norton & Co., Inc., 1930.

STUDIES ON DIGITALIS IN AMBULATORY CARDIAC PATIENTS

IV. NEWER PRINCIPLES OF DIGITALIS DOSAGE *

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AND
ARTHUR C. DeGRAFF, M.D.
NEW YORK

The practice of William Withering,[1] who published the first detailed study of digitalis about 150 years ago, is a matter not only of historical interest but of great practical importance to one dealing with the subject of digitalis dosage. At first glance it may appear as a stroke of genius that a fundamental law regarding the dosage of digitalis was stated at a time when practically nothing was known about the drug, not even that its beneficial effects were related to an action on the circulation. On the other hand, it may be the very fact that there were no distractions in the form of theories of cumulation and excretion or formulas of dosage that made it possible to keep the object clearly in view and to arrive at sound and practical principles. Physicians who profess to use a recommended plan of digitalis dosage frequently find their patients suffering from either insufficient or excessive digitalization. A common difficulty is illustrated by the following example: A physician recently made inquiry because, after having given a patient of a certain weight a daily dose of 4½ grains (0.3 Gm.) of digitalis for about three weeks, he found himself uncertain as to the next procedure when at the end of that time only moderate improvement had occurred and no toxic symptoms had resulted, although the total quantity had exceeded the dosage determined by an accepted method of calculation (Eggleston) and allowance was made for supposed daily excretion (Pardee). Withering's advice in such matters will bear frequent repetition: "Let the medicine be given until it either acts on the kidneys, the stomach, the pulse or the bowels; let it be stopped upon the first appearance of any of these effects." Expressed in modern phraseology, his recommendation was to give digitalis in dosage sufficient to produce the desired therapeutic results and to discontinue it when these are obtained or when minor toxic symptoms occur. In his monograph it is apparent that his practice was to give large doses at first and then to continue the treatment with smaller ones.

In the period of rationalization that followed this work, a great deal of knowledge was gained about the action of digitalis, but much confusion was also introduced by the substitution of *a priori* reasoning for painstaking clinical observations. Theories of cumulation instilled a fear of the drug that resulted in the use of such small quantities as 2 minims (0.12 cc.) of the tincture of digitalis three times daily. In a lecture before the Harvey Society in 1910, Cushny[2] deplored the common use of such inadequate dosage and stated that "The best results are obtained only by the largest doses which can be given without gastric or intestinal symptoms" and recommended doses of from 1 to 1½ drachms (4 to 6 cc.) of the tincture of digitalis daily. Eggleston,[3] in 1915, established the fact that even larger doses of digitalis may be given on the first day with a fair degree of safety, and frequently with great advantage under certain conditions, so that the full effects may be induced as early as eighteen hours after the oral administration of the dose. In 1922 Pardee,[4] in a paper dealing with the prolonged use of digitalis, expressed a view similar to Cushny's. He said: "We want as strong an action as the drug can exert, and so we try to continue the most effective degree of digitalization which is just short of poisoning." He advised that patients should first be brought to the point of saturation (to early toxic symptoms), should then, after an interval of a day or two, receive an average daily dose of 2 grains (0.13 Gm.) because he believed that the average patient excretes about 2 grains daily, and that that daily excretion dose "can and must be given in order to maintain the digitalis effect."

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* Read before the Section on Pharmacology and Therapeutics at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930

* From the Third Medical Division (New York University) and Adult Cardiac Clinic of Bellevue Hospital, and the Department of Pharmacology of Cornell University Medical College.

[1] Withering, William: An Account of the Foxglove, and Some of Its Medicinal Uses with Practical Remarks on Dropsy and Other Diseases, Birmingham, 1785.

[2] Cushny, A. R.: The Therapeutics of Digitalis and Its Allies, Harvey Lectures, 1910-1911, p. 46.

In the reaction to the use of very small doses of digitalis, practice has exceeded the limits recommended by Withering. An altogether too simple view of the matter has been commonly accepted; namely, that in order to produce the best results, it is necessary to digitalize all patients to a point just short of minor toxic symptoms, and that in order to maintain these results it is necessary to maintain the same "effective concentration" of the drug in the body. In the present communication we shall relate how it came to be suspected that these views regarding digitalis dosage are wholly inadequate to explain the response to the drug of the large proportion of ambulatory cardiac patients and to set forth evidence that supports the following conclusions:

1. In the average ambulatory cardiac patient there is a wide margin between the amount of the drug necessary to produce full therapeutic effects and the maximum amount that can be tolerated without toxic symptoms.

2. The "effective concentration" of the drug within the body necessary to maintain full therapeutic results is usually much lower than that necessary to produce them in the beginning.

3. The average ambulatory cardiac patient with auricular fibrillation can be satisfactorily digitalized by the daily repetition of a relatively small dose of the drug, which can then be continued for months or years as the daily maintenance dose without producing toxic symptoms.

4. The degree of heart failure determines the "effective concentration" of digitalis in the body necessary to produce full therapeutic effects and the average ambulatory patient with symptoms of heart failure requires a much lower "effective concentration" of the drug to attain this result than the average bedridden patient with far advanced congestive failure.

CUMULATION, A SELF-LIMITING PROCESS

It is well known that if the average cardiac patient were to receive a daily dose of 9 grains (0.6 Gm.) of an active specimen of digitalis, there would result a progressive increase in the intensity of digitalis action that would continue until toxic symptoms appeared. This is usually interpreted as signifying that the daily dose of 9 grains is more than the patient can excrete in a day, so that the drug continues to accumulate until a quantity is present sufficient to produce toxic symptoms. In a previous article we[5] called attention to the fact that when smaller doses of digitalis are repeated daily it can be shown that cumulation is a self-limiting process; that a suitable daily dose may give evidence of cumulation at first, and that then a level is reached, the effects showing no further increase in intensity even though the same daily dose continues to be administered. The behavior of a typical case is shown[6] in chart 1.

This patient had auricular fibrillation and had been in bed with an attack of congestive heart failure. When he appeared at the clinic he had been without digitalis for a period of three weeks. The ventricular rate was 122 a minute and there were moderate symptoms of cardiac failure. He was given a daily dose of 3 grains (0.2 Gm.), which produced progressive slowing of the ventricular rate and improvement in the symptoms of failure. After two weeks the condition reached a level which was then maintained by the same daily dose without interruption during the succeeding period of forty-two weeks in which he was observed.

The level of effect reached in these cases may be considered as representing a quantity of digitalis which has accumulated[7] in the body and which shows no appreciable variations as long as the same daily dose is continued.[5] The size of the daily dose determines the point at which cumulation ceases (equilibrium between the daily dose and daily excretion). Thus, while a daily dose of 3 grains (0.2 Gm.) in a given patient may lower the ventricular rate from 140 to 80 a minute and keep it at 80, a daily dose of 2 grains (0.13 Gm.) may only lower the rate from 140 to 110 and keep it at that rate, or a daily dose of 6 grains (0.4 Gm.) may lower it from 140 to 50 a minute and keep the rate at this new level with continued administration of the drug. In order to simplify the discussion we shall refer throughout this paper to the amount of digitalis effective when a given level is reached as the "effective concentration" of the drug within the body.

MARGIN BETWEEN MINIMUM DOSAGE FOR FULL THERAPEUTIC EFFECTS AND MAXIMUM DOSAGE TOLERATED WITHOUT TOXIC SYMPTOMS

Several years ago we began to make observations in the Adult Cardiac Clinic of Bellevue Hospital on patients with auricular fibrillation with the view of determining the average daily dose of digitalis necessary to maintain the full therapeutic effects that had been induced while the patient was in the hospital, and to ascertain to what extent that dose would vary with preparations of different potency. During this period approximately 800 ambulatory cardiac patients with auricular fibrillation were treated. Many of them were working. They all showed varying degrees of deficiency in cardiac reserve and with few exceptions had received hospital treatment for one or more attacks of congestive heart failure. When these patients were discharged from the wards of the hospital and enrolled in the clinic, the usual procedure was to begin with a dose of 2 or 3 grains daily. The drug was dispensed in the form of compressed tablets of the dried digitalis leaf and the daily quantity was directed to be taken in a single dose.[9] The patients were examined at intervals of one week or less frequently, depending on a number of circumstances. If toxic symptoms resulted, the daily dose was diminished. The average ambulatory cardiac patient with auricular fibrillation constantly suffers with some symptoms due to deficient cardiac reserve; hence, when the initial dosage produced no symptoms, it was usually increased in an effort to obtain further improvement, and the only way to learn whether greater therapeutic effects were possible in a given patient was to increase the size of the daily dose gradually to the point of minor symptoms. When these occurred the dose was again diminished and the largest amount that produced no toxic symptoms was then continued as the daily maintenance dose. We had previously followed the accepted idea that it was necessary to administer digitalis in the largest doses that could be tolerated without toxic symptoms. At first the study embraced only those patients who attended the clinic regularly and took the daily dose with few or no interruptions.

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[3] Eggleston, Cary: Digitalis Dosage, Arch. Int. Med. **16**: 1 (July) 1915.

[4] Pardee, H. E. B.: The Continued Use of Digitalis, New York State J. Med. **22**: 131 (March) 1922.

[5] Gold, Harry; and DeGraff, A. C.: Studies on Digitalis in Ambulatory Cardiac Patients: II. The Elimination of Digitalis in Man, J. Clin. Investigation **6**: 613 (Feb.) 1929.

[6] In all the illustrative cases in this paper, digitalis leaf (specimen F) was used with a potency of 100 mg. per cat unit.

[7] It is probable that cumulation is in part due to summation of effects in patients with heart failure.

[8] It is possible that some changes may result from the gradual cumulation of slowly excreted fractions of the drug while rapidly eliminated fractions do not cumulate to the same degree.

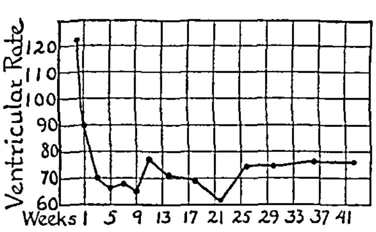

Chart 1.—Ventricular rate in patient E. Q., aged 25, weight 154 pounds (70 Kg.), with rheumatic heart disease, mitral stenosis and insufficiency, enlarged heart and auricular fibrillation; class II-a. The patient had had no digitalis for three weeks; class II-b. Three grains (0.2 Gm.) of specimen F was administered daily.

The first specimen of digitalis (specimen A) had a potency of 75 mg. per cat unit and was used for a period of about one and one-half years by the foregoing technic. It was then discontinued and a second specimen of digitalis (specimen C) was substituted and continued for about the same length of time. The potency of the second specimen was 140 mg. per cat unit. The initial trial doses of this specimen were usually the same in terms of grains as the final daily dosage of the first specimen, although the first was nearly twice as active as the second by the cat method of assay.

That specimen A was also much more active in man than specimen C was evident from the fact that some of the patients in the clinic showed signs of insufficient digitalization when the weaker preparation was substituted for the stronger one in the same grain dosage.[10] It was further confirmed by tests made on patients with congestive heart failure in the wards to whom 0.15 cat unit per pound of body weight of each preparation was given in a single dose. To some of these patients the stronger preparation was given first and, after an interval sufficient for the excretion of the drug, the weaker preparation was given in almost twice the quantity with practically identical results.

Two facts soon became apparent: First, while some of those patients who had been eliminated from the original study because they took digitalis irregularly suffered more marked symptoms of failure or gave objective evidence of inadequate use of the drug, it was rather striking that others showed no signs of insufficient digitalization. Second, the general condition of most of the patients was practically the same with identical doses in grains of the two preparations. As already stated, there were some exceptions in which larger doses of the weaker preparation had to be given to maintain the previous state of improvement.

An analysis was then made of a group of forty-six patients who had received the stronger preparation. The results showed the average daily dose to be 2³⁄₁₀ grains (0.15 Gm.). A similar analysis was made of a group of forty-two patients who received the preparation that was one-half as active. The results showed the average daily dose to be 2⁸⁄₁₀ grains (0.18 Gm.). With only few exceptions the two groups included the same patients and no patient was included who had not received each of the two specimens of digitalis for at least three months. It was also proved that these patients required digitalis because symptoms of failure appeared when the drug was withheld.

The foregoing facts therefore indicate that the average ambulatory patient with auricular fibrillation in whom improvement was maintained for long periods of time by what was approximately the maximum tolerated dosage was receiving much more digitalis than was necessary though no toxic symptoms were induced, and that much smaller doses sufficed to produce equally satisfactory therapeutic results.

This conclusion was tested in a somewhat different way in a number of cases in which the same specimen of the drug was employed in varying doses in the same patients. The results obtained in one case have been charted and serve as an illustration (chart 2). This patient had auricular fibrillation with moderate symptoms of congestive heart failure and a ventricular rate of 140 a minute. He had been without digitalis for a period of more than three weeks when he came under observation. After a daily dose of 3 grains (0.2 Gm.) for fourteen days the ventricular rate decreased to 81 a minute and all symptoms of failure disappeared. The continued use of this dose maintained this improvement. An increase of the dose by 100 per cent to 6 grains (0.4 Gm.) daily, produced no perceptible change in the condition. A further increase to 9 grains (0.6 Gm.) daily for seven days lowered the heart rate to 68 a minute, though the symptoms and signs remained the same. Thus the clinical condition during the period when the dose of 6 grains was taken was indistinguishable from that in which the one of 3 grains was used. This again illustrates the wide margin between the maximum tolerated dosage and that which is sufficient to produce or maintain the full therapeutic results in this class of patient.

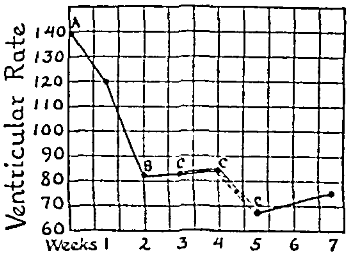

Chart 2.—Ventricular rate in patient J. H., aged 51, with rheumatic heart disease, mitral stenosis and insufficiency, enlarged heart and auricular fibrillation; class II-a. *A*, failure; *B*, marked improvement; *C*, same; the single line indicates 3 grains (0.2 Gm.) daily; double line, 6 grains (0.4 Gm.); three lines, 9 grains (0.6 Gm.).

In this chart, as in all the subsequent ones, only the ventricular rate is recorded as evidence of the intensity of digitalis action because it is a criterion that lends itself most satisfactorily to graphic presentation. The apex rate was counted by the stethoscope under fairly uniform conditions with the patient sitting or lying after a rest of several minutes. In most instances, other evidence of failure disappeared with the slowing of the heart rate. We have gathered data bearing on the relative importance of the various criteria for estimating the intensity of digitalis action in patients with auricular fibrillation and these will be analyzed in a subsequent communication. It is well to state here, however, that while the ventricular rate is a very satisfactory index of digitalis action in most cases of auricular fibrillation there are many cases in which the intensity of action is not revealed in changes of the ventricular rate alone. It is not infrequently observed that a given dosage lowers the heart rate to normal levels with only moderate improvement in the symptoms of failure, and with more intense digitalization the latter improve markedly though little or no further change in the heart rate occurs. On the other hand (with due caution against possible errors in interpretation), improvement in the subjective symptoms of failure is occasionally seen after doses of digitalis that have produced little or no slowing of a rapid ventricular rate.

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[9] Gold, Harry; and DeGraff, A. C.: Studies on Digitalis in Ambulatory Cardiac Patients: I. The Use of Digitalis in the Cardiac Clinic, J. A. M. A. **90:** 1016 (March 31) 1928.

[10] In these cases the dosage of specimen A may have been less than the maximum tolerated dose, or they may have been cases in which the latter is necessary to maintain the effects

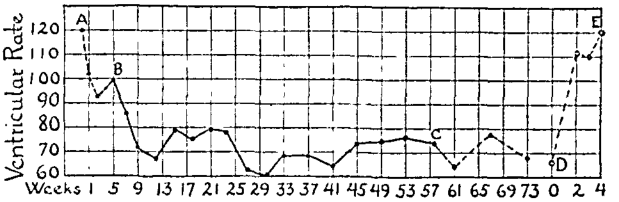

Chart 3.—Ventricular rate in patient T. K., aged 30, with heart disease of unknown origin, mitral stenosis and insufficiency, enlarged heart and auricular fibrillation; class II-a *A*, failure, class II-b, 3 grains (0.2 Gm.) of specimen F daily; *B*, 4½ grains (0.3 Gm.) daily; *C*, 3 grains; *D*, digitalis discontinued; *E*, failure; class II-b.

"EFFECTIVE CONCENTRATION" OF DIGITALIS FOR PRODUCING FULL THERAPEUTIC EFFECTS VERSUS "EFFECTIVE CONCENTRATION" NECESSARY FOR MAINTENANCE

In order to induce the full effects of digitalis without undue delay it is necessary to give relatively large doses for the first few days, and since these doses, if continued, will induce toxic symptoms, the treatment is continued with smaller daily doses. This is a generally approved practice. It is commonly held, however, that these smaller doses should be equal to the amount of digitalis the patient excretes daily after full digitalization, in order to maintain the high "effective concentration" of the drug in the body induced by the larger doses. The very fact that most ambulatory patients after having been fully digitalized in the hospital were getting along satisfactorily with nearly one-half as much digitalis as they could tolerate without toxic symptoms is in itself an indication that such an "effective concentration" as is often necessary to induce effects is frequently unnecessary in order to maintain them. A number of observations bearing directly on this question have been made and the results in a typical case are reproduced in chart 3. The observations on this patient covered a continuous period of seventy-three weeks for this study. The patient had auricular fibrillation and had been attending the cardiac clinic for more than five years. When receiving adequate doses of digitalis he usually presented only slight evidence of deficient cardiac reserve. At the end of the chart there is a record of the changes occurring when the drug was withheld after a daily dosage of 4 grains (0.26 Gm.) for some time. Within two weeks the ventricular rate became rapid and after four weeks marked symptoms of failure appeared. It is evident, then, that for this patient the more or less continuous use of the drug was essential. At another period he had received a daily dose of 1½ grains (0.1 Gm.) for several weeks. This dose was inadequate and he gradually passed into congestive heart failure with a ventricular rate of 120 a minute, as seen at the beginning of the chart. It now became necessary to digitalize the patient again. A daily dose of 3 grains (0.2 Gm.) for one week resulted in only moderate improvement and slowing of the heart rate to about 100 a minute, and the continuation of that dose for four more weeks simply maintained that level. The dose was then increased to 4½ grains (0.3 Gm.) daily with the result that the rate returned to a normal range and all symptoms of failure disappeared. This dose was then continued *daily for a period of fifty-three weeks without giving* any evidence of greater digitalis action. It was then diminished to 3 grains (0.2 Gm.) daily, which now served to maintain the state of improvement during the subsequent period of observation of nearly four months. Thus, it is shown that, contrary to the common belief, a lower "effective concentration" of digitalis within the body may suffice to maintain the full effects than may be required to produce them in the beginning; and, as has already been shown, that the daily dose necessary to maintain these effects may be much smaller than that which can be excreted daily.

DIGITALIZATION BY A SMALL DOSE METHOD

In previous articles we[11] called attention to the fact that ambulatory cardiac patients with auricular fibrillation showing a rapid ventricular rate and varying degrees of heart failure, who have never received digitalis or in whom it was withheld for sufficiently long periods of time to allow for elimination of the drug, can be effectively digitalized by the daily repetition of a dose which may then be continued daily for long *periods of time* (months or years) *without* producing toxic symptoms. The daily doses ranged from 2 to 6 grains (0.13 to 0.4 Gm.), being occasionally as high as 9 grains (0.6 Gm.), and varied with different patients and with differences in potency of the drug. The records of thirty-four satisfactory courses of digitalization in twenty-one patients were published and, since then, nine additional patients were proved[12] to have been fully digitalized[13] in that way. The behavior of

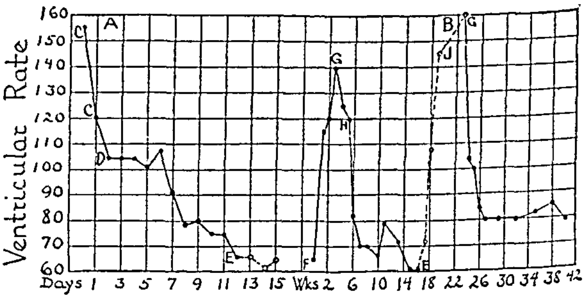

Chart 4.—Ventricular rate in patient J. R., aged 46, with arteriosclerotic heart disease, enlarged heart and auricular fibrillation. *A*, first failure (in hospital); functional class III; *B*, second failure (in clinic); functional class II-b, *C*, 24 grains (1.5 Gm.); *D*, 12 grains (0.8 Gm.) daily; *E*, digitalis discontinued; *F*, 3 grains (0.2 Gm.) daily; *G*, 6 grains (0.4 Gm.) daily; *H*, 9 grains (0.6 Gm.) daily; *J*, 4½ grains (0.3 Gm.) daily.

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[11] Gold, Harry; and DeGraff, A. C.: (Footnote 5); Studies on Digitalis in Ambulatory Cardiac Patients: III. Digitalization by a Small Dose Method, J. A. M. A. **92**: 1421 (April 27) 1929.

[12] It has always been necessary to continue an experiment for several months in order to be fairly certain that the dose selected would not cause toxic symptoms. Only a small percentage of experiments started could therefore be completed satisfactorily and without interruption.

[13] In all cases suitable care was taken not to attribute to digitalis results that were due to changes in effort (footnote 5).

a typical case has already been shown in chart 1. It should be noted that the full therapeutic effects were induced by the same 3 grain (0.2 Gm.) daily dose that the patient was excreting daily during the long period of maintenance. If he had not been excreting it, toxic effects would have resulted from cumulation. This illustrates a departure from the view commonly held about the so-called daily excretion dose; the latter has been generally considered adequate to maintain effects produced by larger doses but not sufficient to produce them in the first place. In those papers we presented reasons for the belief that the foregoing phenomenon is explained by the fact that the amount of digitalis excreted daily is in all probability not a fixed quantity, and the dose that was excreted daily after some drug had accumulated in the body was not being completely excreted at the beginning.

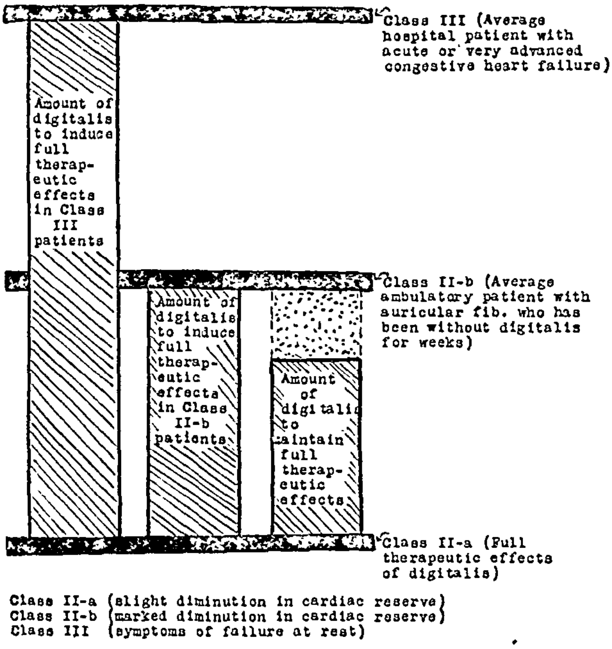
Class III (Average hospital patient with acute or very advanced congestive heart failure)
Amount of digitalis to induce full therapeutic effects in Class III patients
Class II-b (Average ambulatory patient with auricular fib. who has been without digitalis for weeks)
Amount of digitalis to induce full therapeutic effects in Class II-b patients
Amount of digitalis to maintain full therapeutic effects
Class II-a (Full therapeutic effects of digitalis)
Class II-a (slight diminution in cardiac reserve)
Class II-b (marked diminution in cardiac reserve)
Class III (symptoms of failure at rest)

Chart 5.—Dosage of digitalis that is necessary to produce full therapeutic effects varies with the degree of heart failure.

DEGREE OF HEART FAILURE A FACTOR IN DOSAGE

While the larger proportion of ambulatory cardiac patients with *auricular fibrillation can be successfully* digitalized by the "effective concentration" of the drug reached by the daily repetition of relatively small doses, there is ample experience to show that such daily quantities are quite inadequate to induce full therapeutic effects in most patients with very advanced congestive heart failure. That the degree of heart failure is an important factor in determining the amount of digitalis necessary to produce full therapeutic results has been further tested in a number of observations, of which the following is an illustration (chart 4). This patient had auricular fibrillation and was admitted to the hospital in advanced congestive heart failure with a rapid ventricular rate. During a control period in bed for nineteen days the condition did not improve appreciably. He then received large daily doses of digitalis, 24 grains (1.55 Gm.) daily for the first two days, then 12 grains (0.78 Gm.) daily, with the result that marked improvement occurred, the ventricular rate slowed, the edema disappeared with a loss in body weight of about 30 pounds, or 13.6 Kg. (170 pounds to 140 pounds, 77 Kg. to 63.5 Kg.) and the patient was up and about after the sixth day. After his discharge from the hospital a daily dose of 3 grains (0.2 Gm.) for three weeks was insufficient to maintain the effects, and then a daily dose of 6 grains (0.4 Gm.) for two weeks was inadequate to restore the results obtained in the hospital. It was increased to 9 grains (0.6 Gm.) daily and this resulted in full digitalization, which was maintained for eleven weeks by the same daily dose. The drug was then withheld and at the end of five weeks moderate symptoms of failure and a very rapid ventricular rate developed. This time the daily administration of 6 grains (0.4 Gm.) of the same specimen of the drug was sufficient to produce full digitalization and to maintain the effects for a period of observation of sixteen weeks. In this patient, therefore, when failure began to reappear shortly after his discharge from the hospital as the result of an inadequate maintenance dose of digitalis, a daily dose of 6 grains (0.4 Gm.) was insufficient to check it appreciably. This dose, however, was quite sufficient to digitalize the patient satisfactorily in a mild attack of failure after a prolonged period of several months of improvement.

The conception that develops from these observations regarding the "effective concentration" of digitalis neccessary under different conditions is represented schematically in charts 5 and 6. It may be seen from chart 5[14] that patients with very advanced congestive heart failure require more digitalis to produce full therapeutic effects than those with symptoms of failure of lesser degree. A corollary of this fact is the further observation that the "effective concentration" necessary in order to produce the full effects is frequently much higher than is necessary in order to maintain them. These facts are illustrated from a somewhat different angle in chart 6. It shows that while there is a wide margin between the dose necessary

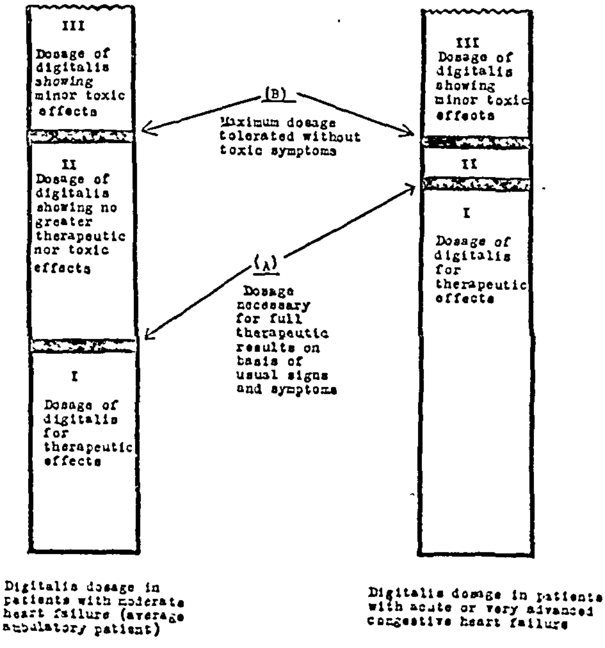
III
Dosage of digitalis showing minor toxic effects
(B)
Maximum dosage tolerated without toxic symptoms
II
Dosage of digitalis showing no greater therapeutic nor toxic effects
(A)
Dosage necessary for full therapeutic results on basis of usual signs and symptoms
I
Dosage of digitalis for therapeutic effects
III
Dosage of digitalis showing minor toxic effects
II
I
Dosage of digitalis for therapeutic effects
Digitalis dosage in patients with moderate heart failure (average ambulatory patient)
Digitalis dosage in patients with acute or very advanced congestive heart failure

Chart 6.—Margin between dosage necessary for full therapeutic results and maximum dosage that may be tolerated without toxic symptoms in patients with moderate and severe heart failure.

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[14] *The functional classification in the illustration is based on the plan adopted by the Heart Committee of the New York Tuberculosis and Health Association.*

for full therapeutic effects and that which produces toxic symptoms in patients with moderate symptoms of failure, this margin is often very small in patients with acute or very advanced congestive heart failure. In the latter, the margin is sometimes rendered even smaller by the greater susceptibility to some of the minor toxic symptoms, such as premature contractions. This is frequently seen in the terminal stages of heart disease.[15]

THE AMBULATORY CARDIAC PATIENT VERSUS THE BED PATIENT

For practical purposes it is well to consider two general groups of patients with auricular fibrillation presenting symptoms of heart failure. One is the type generally found in the wards of the hospital; the other is the ambulatory patient of the cardiac clinic. There is, of course, no sharp distinction between the two, and a given patient may at different times belong to one group or the other. The classification is employed to convey the idea of the distinction between patients with acute or far advanced heart failure showing marked symptoms at rest, and those that have more moderate symptoms, or symptoms only after exertion, who are able to be up and about, or may even be engaged in some light occupation. As already stated, it has been abundantly demonstrated that rapid digitalization with large doses frequently gives the best results in the very advanced degree of failure of the hospital patient. In this type the amount the patient needs is frequently the largest that can be tolerated without toxic symptoms. In the average ambulatory patient, however, such a high "effective concentration" is usually unnecessary. A much lower "effective concentration" produces equally satisfactory therapeutic results, though the higher one can be tolerated for years without showing any greater therapeutic results or producing any toxic symptoms.

We have used the term "equally satisfactory therapeutic results" while at the same time appreciating the fact that the present available criteria are quite inadequate for determining when results are equally satisfactory in every respect. There are at least three important factors to be considered: the subjective symptoms, the objective signs of failure, and the tendency to recurrence of attacks of failure. If a patient with auricular fibrillation with marked dyspnea, edema of the legs and a ventricular rate of 140 a minute is given a daily dose of 4½ grains (0.3 Gm.) of digitalis, and after ten or fifteen days all the shortness of breath and the edema disappear, the ventricular rate reaches a normal range around 75 or 80 a minute, the patient resumes his former work, and the state of improvement is maintained for several months, we say that the full therapeutic results have been produced, provided no greater improvement is in evidence when the dose is increased. When similar results are obtained by a daily dose of 3 instead of 4½ grains, in the same patient, the question arises whether the smaller dose will be as effective as the larger one in preventing the recurrence of heart failure in the course of years. There have been no systematic studies of this question and it is hardly necessary to state that such an investigation, though difficult to carry out, would yield information of great practical value. In the present state of knowledge it is more logical to follow the principle of digitalis dosage laid down by Withering, which is not to give as much digitalis as patients can tolerate without toxic symptoms, but only so much as is necessary to produce full therapeutic effects judged by the available criteria of improvement.

PRIMARY AND SECONDARY DIGITALIS EFFECTS

The phases of the problem of dosage for the production and maintenance of digitalis effects that have been discussed are, we believe, merely different aspects of the primary idea that the degree of heart failure determines the necessary dosage.[16] The probable explanation of the fact that patients with extreme heart failure usually require a higher "effective concentration" of digitalis in the body to restore the circulation than the same patients in a lesser degree of failure is closely bound up with the subject of the duration of digitalis effects and will be discussed in a forthcoming paper dealing with that subject. Suffice it to say at this time that neither differences in absorption nor excretion of the drug in the two states of heart failure appear to be factors of any great importance in the majority of cases. The production and the maintenance of digitalis effects in patients with congestive heart failure is not to be regarded as a case of simple biologic titration with a drug, in the sense that a given dose produces a given effect and that with the disappearance of the drug the effect at once disappears. After the circulation is restored by digitalis (primary effect), an important secondary factor becomes apparent; namely, the tendency to remain improved independently of the drug. This varies with different kinds and degrees of cardiac damage and in all probability plays a significant rôle in determining the "effective concentration" of digitalis that is necessary to produce as well as to maintain full therapeutic results.

There are wide variations in the amounts of digitalis recommended by different authorities. This is partly due to the fact that preparations of different potencies are employed, often affording no basis for comparing actual dosage. This subject is discussed in a recent paper by Wyckoff, Gold and Travell.[17] They also pointed out that differences in the potency of different preparations may sometimes escape detection in the wide margin between the minimum doses that produce the full effects and the maximum doses that can be tolerated without toxic symptoms. Another important source of confusion regarding dosage, however, is the fact that patients with symptoms of heart failure have been regarded in the past as a homogeneous group from the standpoint of their needs for the drug. At a time when very large doses were considered dangerous, patients with far advanced cardiac failure were inadequately treated, whereas at the present time, when digitalization to the point of minor toxic symptoms has come to be generally regarded as essential, the average ambulatory patient with mild symptoms of cardiac failure is receiving far more digitalis than is necessary.

SUMMARY

1. In the average ambulatory cardiac patient with auricular fibrillation and moderate heart failure a much lower "effective concentration" of digitalis in the body suffices to produce full therapeutic effects than is required in the average bedridden patient in advanced congestive failure.

2. We have shown that, in the ambulatory patient, full therapeutic effects, as judged by the usual clinical

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[15] Gold, Harry; and Otto, H. L.: A Clinical Study of Digitalis Bigeminy, Am. Heart J. 1:471 (April) 1926.

[16] Throughout this paper we refer to differences in effective dosage, i. e., after absorption has taken place and not to differences that might result from poor absorption.

[17] Wyckoff, John; Gold, Harry; and Travell, Janet G.: The Importance of Differences in the Potency of Digitalis in Clinical Practice, Am. Heart J. 5:401 (April) 1930.

criteria of improvement, can be produced by daily repetition of a relatively small dose of the drug that can then be continued as the daily maintenance dose without producing toxic symptoms. As is well known such results cannot be obtained with such small doses in the average patient with far advanced congestive failure; the larger daily doses usually required in these cases cannot be long continued without producing toxic symptoms.

3. In the average ambulatory cardiac patient there is a wide margin between the minimum dosage that produces full therapeutic results and the maximum that can be tolerated without toxic symptoms. This margin is frequently smaller in patients with far advanced failure and the latter often require the largest dosage that can be tolerated in order to produce the best results.

4. It is the accepted practice to use relatively larger doses of digitalis to produce the full therapeutic effects and then relatively smaller daily ones in order to maintain these results for long periods of time. The usual explanation is that the smaller doses are necessary in order to maintain the high "effective concentration" of the drug produced by the larger ones. Evidence has been set forth proving, however, that the "effective concentration" of the drug within the body necessary to maintain the full effects is usually much lower than that required to produce them in the beginning.

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THE THERAPEUTIC VALUE OF DIGITALIS IN PNEUMONIA *

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The work of Cohn and Jamieson [1] definitely established that there is a digitalis action on the heart in lobar pneumonia. In an address given in 1916 on the use of digitalis in pneumonia, Cohn [2] concluded that this drug did no harm and might be life saving. He suggested that it might be given to all patients as a routine, and explained the method of dosage in operation at the Hospital of the Rockefeller Institute. This extremely careful work and these conservative suggestions naturally influenced medical thought throughout the country, so that during the next ten years the routine giving of digitalis to patients with lobar pneumonia became a not uncommon procedure in many clinics, including Bellevue Hospital and most of the other large hospitals in New York.

However, during the period in which digitalis was given, no studies of comparative mortality were made between groups of patients with pneumonia receiving digitalis, and others from whom it was withheld. In Bellevue Hospital the study by the Columbia, Cornell and New York University Medical Divisions in the cases of lobar pneumonia with reference to specific antipneumococcus therapy by the control method provided a machinery that could readily be adjusted to include an investigation of the effects of the use or nonuse of digitalis as routine therapy in this disease as well. It seemed, therefore, an ideal time to investigate the action of the drug in cases of pneumonia, through the opportunity to use methods more favorable to constructive conclusions than had hitherto been employed.[3]

METHOD

In other studies of the value of digitalis in pneumonia there were none in which simultaneous observation under identical conditions were made on similarly selected groups of patients treated with digitalis and patients from whom digitalis was withheld. If sound conclusions are to be drawn, it is essential that both groups of patients, those receiving digitalis and those from whom digitalis is withheld, be selected similarly and simultaneously.

The analysis of hospital records of previous years with the study of digitalis untreated and treated groups does not constitute a properly controlled series. As a rule, under these circumstances, digitalis was not given in the milder cases of pneumonia, while it was thought necessary in the more severe cases and the patients were given it. This fact is well brought out by Randolph [4] in his analysis of 100 consecutive cases at the George Washington University Hospital, by Cohn and Jamieson [1] in their study of 105 cases at the Rockefeller Institute, and by Burrage and White [5] in their analysis of 221 cases during a five year period at the Massachusetts General Hospital. A further method of selection of controls, as done by Hart [6] in his study of influenzal pneumonia, in which a considerable number of controls "were selected at random from time to time," does not seem satisfactory. Nor yet does the comparison of untreated cases observed during one period of time with cases treated with digitalis during another period seem justified, as was done by Stone, Phillips and Bliss,[7] and later again by Stone,[8] since other methods of treatment as well as virulence of infection differ greatly from time to time.

In the present study it was decided that patients should be selected for the digitalis or nondigitalis groups in the following way: Patients were received into the "pneumonia series" according to the date and hour of admission, and alternate patients were treated with serum. The combination of serum and digitalis therapy led to the grouping of patients into four classes, selected only by the time of admission, and termed arbitrarily A, B, C and D. The treatment of the patients in these four classes was as follows:

Class A received neither serum nor digitalis.
Class B received serum only.
Class C received digitalis only.
Class D received both serum and digitalis.

This system of classification operated in each ward independent of other wards, so that factors of general care and nursing might be the same for each class of treatment.

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* Read before the Section on Pharmacology and Therapeutics at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

* From the First (Columbia), Second (Cornell), and Third (New York University) Medical Divisions of Bellevue Hospital, and from the Departments of Medicine of Columbia, Cornell and New York University.

[1] Cohn, A. E., and Jamieson, R. A.: The Action of Digitalis in Pneumonia, J. Exper. Med. **25**: 65-81 (Jan.) 1917.

[2] Cohn, A. E.: The Use of Digitalis in Pneumonia, New York M. J. **105**: 234 (Feb.) 1917.

[3] The committee for the study of digitalis in pneumonia is composed of Drs. Norrie and Woodruff of the First (Columbia University) Medical Division, Drs. Du Bois, Niles and Eggleston of the Second (Cornell University) Medical Division, and Drs. Wyckoff and DeGraff of the Third (New York University) Medical Division of Bellevue Hospital.

[4] Randolph, B. M.: The Cardiovascular Problem in Pneumonia, Arch. Int. Med. **43**: 248-266 (Feb.) 1929.

[5] Burrage, W. S., and White, P. D.: Digitalis in Pneumonia, Am. J. M. Sc. **174**: 260-264 (Aug.) 1927.

[6] Hart, T. S.: The Heart in Bronchopneumonia: Observations on the Activity of the Heart and Its Response to Digitalis Made During the Recent Epidemic, Am. J. M. Sc. **158**: 649-658 (Nov.) 1919.

[7] Stone, Willard; Phillips, B. J., and Bliss, W. P.: A Clinical Study of Pneumonia Based on 871 Cases, Arch. Int. Med. **22**: 409-437 (Oct.) 1918.

[8] Stone, W. J.: The Heart Muscle Changes in Pneumonia with Remarks on Digitalis Therapy, Am. J. M. Sc. **163**: 659-668 (May) 1922.

Criteria of diagnosis were those ordinarily used to establish the diagnosis of lobar pneumonia; namely, typical history, physical observations, characteristic sputum, pneumococcus typing and fluoroscopic examination, verified whenever possible by postmortem examination. In the first year of the digitalis study (1927-1928), all cases of lobar pneumonia were included in the series regardless of the duration of the disease on admission or of general complications. In the second year (1928-1929), cases with history of onset more than eight days previous to admission or with general system disease were excluded from the digitalis-serum series; but of the cases thus excluded, any that showed evidence of cardiocirculatory disease were studied in the digitalis series as extra cases and were treated with or without digitalis according to the time of their admission, with reference to the regular A, B, C and D grouping.

In a large, active service such as that at Bellevue Hospital, it is difficult under ordinary circumstances to be certain that medications are always given exactly in the form and at the hour ordered, but in this special study every precaution was taken to know precisely how and when the digitalis was administered. The "digitalizing dose" for each patient was put in a small cardboard box labeled with the patient's name and given to the nurse in charge of the ward. The order for digitalis was written both in the ward and in the order book and on a manila tag fastened securely to the patient's bed. When the nurse gave the digitalis, she initialed the tag and wrote on it the exact hour of administration. These tags, later collected, constituted a permanent record.

Identical observations were made on patients who received digitalis and those from whom digitalis was withheld. The usual clinical and laboratory observations were taken, such as temperature, pulse, respirations and blood pressure, urinalysis and Wassermann reaction, and frequently morphologic and chemical examination of the blood. In addition, every patient was electrocardiographed daily during the febrile period, and every other day thereafter. A control tracing was taken on all digitalis-treated patients before any digitalis was administered. A total of 2,668 electrocardiograms were taken in the first year, and 3,369 in the second. Of the 835 patients studied in both years, 625 were electrocardiographed three or more times, 153 had one or two tracings, and 57, or less than one tenth, died before any tracings were taken at all.

A special staff was appointed to carry out the work along the method outlined. A full-time fellow was in resident charge of the work each year,[9] and was assisted by an electrocardiographic technician and a diener. This staff was working in addition to the staff then studying the serum treatment, and to the regular intern staff of the hospital.

DIGITALIS

Previous to the beginning of the investigation, different preparations of digitalis had been used in the three services. In the Columbia University service, the regular Bellevue Hospital preparation of digitalis was used. In the Cornell University Service, a preparation which we will call B was in use. This had been standardized by the manufacturer and was said to have a potency of 66 mg. equivalent to one cat unit by the cat unit method of Hatcher. In the New York University Division a preparation standardized by the manufacturer was in use which was said to have a potency of 100 mg. equivalent to one cat unit. These preparations had been in routine use in the wards and at this time there was no reason to doubt the reliability of the standardization. However, as it was desired to use a standardized preparation in all three services it was decided to discontinue the use of the unstandardized hospital digitalis in the Columbia Division and to use in its stead on this as well as in the Cornell Service preparation B, and to use in the New York University service a preparation which we will call A.

On its being noted that there was a high incidence of toxic signs for patients treated with the B preparation, it was found that this specimen of digitalis was approximately twice as active as the manufacturer had stated, in terms of cat unit potency. Reports dealing with the standardization of this preparation have been published.[10] When the error in standardization had been proved, a third noncommercial standardized preparation of digitalis was administered to patients in all divisions. This preparation, designated preparation G, had a potency of 100 mg. equivalent to one cat unit. While this occurrence resulted in unfortunately high dosage to a number of patients, it enabled us to study three groups: patients receiving too little dosage, optimum dosage (as far as could be determined) and high dosage.

DOSAGE

It was realized that in acute disease such as pneumonia, patients have to receive their digitalis rapidly. At the same time it was felt that the production of toxic effects should be prevented if possible. For this reason it was decided to give the digitalis in divided dosage, in no case giving a patient a digitalizing dose of more than the amount of 0.15 cat unit per pound of body weight, and to stop the administration of the drug on the appearance of any suggestive toxic symptom even though the full calculated amount had not been given. During the first year the dose was divided into parts approximating 30, 30, 15, 15 and 10 per cent of the estimated dose and these were given at intervals of six hours, the last dose (when given) being given about twenty-four hours after the first. As it was deemed unwise and unnecessary to weigh these patients, they were divided roughly into three groups, those who appeared to weigh less than 125 pounds (56.7 Kg.), those weighing between 125 and 175 pounds (79.4 Kg.) and those weighing over 175 pounds.

Because of the incidence of toxic signs, especially vomiting and the higher grades of heart block, in the digitalis-treated cases before the specimens were restandardized, it was decided, in the second year of the investigation, to reduce the dosage. Patients were then divided into two weight groups instead of three, those weighing above and below 150 pounds (68 Kg.). The lighter weight group received a total digitalizing dose of ten cat units, or 1 Gm., and the heavier 12.5 cat units, or 1.25 Gm. This was administered in three doses, the first 50 per cent of the total, the second 25 per cent, given twelve to eighteen hours after the first, and the third dose, 25 per cent, given after another interval of from six to eight hours. This dose compares closely with that given by Cohn and Jamieson.[1] They had observed with 0.8 Gm. definite digitalis effects on the electrocardiogram in pneumonia, and their usual dosage[2] was between 1 and 2 Gm. Hart[6] also used a similar dosage in the treatment of influenzal pneumonia, giving 25 minims (1.5 cc.) of the tincture every four to six hours for six doses, or a total of the equivalent of 1 Gm. in twenty-four hours, and 24 minims daily thereafter, or the equivalent of 0.3 Gm. Stone[8] used a dosage of 4 cc. of tincture digitalis given every four hours for six doses, or a total dose the equivalent of 1.6 Gm. of powdered leaf in twenty-four hours, and no daily maintenance dose.

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[9] The Fellows in Medicine in immediate charge of the digitalis investigation were J. Allen Yager, M.D., during the first year; Janet G. Travell, M.D., the second year and Margery Shearer, M.D., during the third year. The authors wish to express their appreciation for the invaluable services rendered by the Fellows.

[10] Wyckoff, John; and Gold, Harry: A Dangerous Preparation of Digitalis, J. A. M. A. 94: 626 (March 1) 1930. Wyckoff, John; Gold, Harry; and Travell, Janet G.: The Importance of Differences in the Potency of Digitalis in Clinical Practice, Am. Heart J. 5: 401-411 (April) 1930.

In our investigation, a daily maintenance dose of two cat units was given in both years. This was administered in a single dose each morning, and was discontinued when the temperature became normal or if toxic signs developed.

It was particularly difficult to determine proper dosage from the experience of others because most investigators either used no standardized preparation of digitalis, or, if a standardized preparation were used, the fact that it had been standardized was noted without estimation of its potency.

Table 1.—*Comparative Mortality of Digitalis Untreated and Treated Patients for the First and Second Years of the Investigation* *

	No Digitalis			Digitalis			
Year	Number of Patients	Number Died	Mortality, per Cent	Number of Patients	Number Died	Mortality, per Cent	Difference in Mortality
1	197	68	34.5	158	67	42.4	7.9
2	207	68	32.9	180	73	40.6	7.7
1 and 2	404	136	33.7	338	140	41.4	7.7

* In tables 1, 2, 3, 4 and 6, patients discharged at their own risk, patients in the C and D (digitalis treated) series who received no digitalis, and deaths within twenty-four hours after admission have been excluded.

In all, 834 cases were studied. A few of these patients were discharged from the hospital at their own risk on the request of responsible relatives; several others in the groups scheduled to receive digitalis, through error, received none. These, and all patients dying within twenty-four hours after admission, were excluded from the tabulations. There remained 742 patients.

Table 1 shows the gross results of the study. It must be remembered that a difference of 7.7 per cent in a mortality of 33.7 per cent means an increase in mortality of more than one fifth. The mortality of the digitalis group and the group receiving no digitalis is consistent for both years. This is particularly noteworthy because during the second year the dose was greatly reduced, as has been stated. A later study, however, shows that this high mortality occurs in patients getting the larger doses, even in the second year.

Table 2.—*Mortality of Males and Females for Digitalis Untreated and Treated Patients*

	No Digitalis			Digitalis			
Sex	Number of Patients	Number Died	Mortality, per Cent	Number of Patients	Number Died	Mortality, per Cent	Difference in Mortality
Male	357	123	34.5	299	125	41.8	7.3
Female	47	13	27.7	39	15	38.5	10.8

The sex distribution was preponderatingly male for the series, but table 2 shows that the sex ratio was consistent both in the group receiving digitalis and in that from which the drug was withheld. The female series is so small that it is doubtful whether the difference of 3.5 per cent greater mortality among the women receiving digitalis is of significance.

Table 3.—*Mortality of Age Groups for Digitalis Untreated and Treated Patients*

	No Digitalis			Digitalis			
Age Group in Years	Number of Patients	Number Died	Mortality, per Cent	Number of Patients	Number Died	Mortality, per Cent	Difference in Mortality
10 to 29	94	15	16.0	73	19	26.0	10.0
30 to 39	109	30	27.5	76	25	32.9	5.4
40 to 49	99	40	40.4	99	44	44.4	4.0
50 plus	102	51	50.0	90	52	57.8	7.8
Totals	404	136	33.7	333	140	41.4	7.7

Table 3 shows age distribution in the groups receiving and not receiving digitalis. The distribution is extremely consistent in the patients who did not take this medicine; in the group which did receive digitalis there are about 6 per cent more over the age of 40 than under. Brooks[11] advises routine digitalis therapy in older patients. In this series, digitalis did not reduce the mortality in the older age groups; the patients over 50 receiving digitalis showed a mortality of 7.8 per cent higher than patients in the same age group not receiving the drug.

It is known that the mortality in pneumonia is different in the various types. Patients with type I pneumonia have a relatively low mortality and those with type II a very large mortality. Table 4 compares the type incidence in the two groups. It is shown that it is consistent in both, and that the difference in mortality in the group receiving and not receiving digitalis cannot be due to a preponderance of a low mortality type such as type I or of a high mortality type such as type II occurring in one of the two groups. It shows that the mortality is always higher in the group receiving digitalis except for type II; patients in type II receiving digitalis actually had a mortality of 2.3 per cent lower than patients not receiving it.

Table 4.—*Mortality of Pneumococcus Types for Digitalis Untreated and Treated Cases*

	No Digitalis			Digitalis			
Type	Number of Patients	Number Died	Mortality, per Cent	Number of Patients	Number Died	Mortality, per Cent	Difference in Mortality
I	98	22	22.4	66	23	34.8	12.2
II	130	62	47.7	108	49	45.4	—2.3
III	28	9	32.1	25	12	48.0	15.9
IV to XIII and unclassified	135	33	24.4	128	50	39.1	14.7
Miscellaneous	13	10	....	11	6	....	....
Total	404	136	33.7	338	140	41.4	7.7

We have been unable to explain this inconsistency in otherwise consistent results. Our type II patients had similar age distribution in the two groups and the group receiving digitalis received it in the same dosage as did the patients having other types of pneumonia.

Our cases were carefully watched and toxic symptoms, such as vomiting, second, third or fourth stage

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11. Brooks, Harlow: The Treatment of the Patient with Lobar Pneumonia, Internat. Clin. 4: 201-215 (Dec.) 1927.

heart block and coupled rhythm, occurred to some degree in 75 of the 338 cases. As might be expected, 65 of these were noted in the 142 patients receiving digitalis B (the improperly standardized preparation), and in only 5 patients of the 93 receiving digitalis A, and in 5 of the 109 patients receiving digitalis G. These facts will be discussed later.

It was pointed out by Cohn and Jamieson[1] that, in auricular fibrillation and flutter, greatest benefit could be expected from digitalis therapy in pneumonia. Table 5 shows that in 835 cases there were 33 cases of either auricular fibrillation or flutter. Seventeen patients received no digitalis and 16 received it. Of the patients who received no digitalis, 9 died, a mortality of 52.9 per cent. Of the 16 patients who received digitalis, 14 died, a mortality of 87.5 per cent. In this paper these facts are simply being presented. A more detailed analysis of these cases and those now being studied will be presented at a later time.

Table 5.—*Mortality and Incidence of Auricular Fibrillation and Flutter* *

Auricular Fibrillation and Flutter	No Digitalis (429 Patients)	Digitalis (406 Patients)	Total All Patients (835 Pat ents)
Number of patients	17	16	33
Incidence in series	4.0%	3.9%	4.0%
Number died	9	14	23
Mortality	52.9%	87.5%	69.7%

* The average dose of digitalis per patient for the digitalis treated group was 1.17 Gm.

Stone, Phillips and Bliss[7] discuss the necessity of considering separately patients the course of whose disease is associated with pneumococcal complications such as empyema, endocarditis, pericarditis, arthritis and meningitis from those not so associated. In order that we might do this, table 6 was prepared. This table shows that 27 of the digitalis treated patients had such complications; 19 died, a mortality of 70.4 per cent. There were 24 patients not receiving digitalis; 14 died, a mortality of 58.3 per cent, a difference in mortality of 12.1 per cent in favor of patients not receiving digitalis.

Table 6.—*Mortality of the General Series Except Patients with Pneumococcal Complications for Digitalis and No Digitalis Groups*

	No Digitalis			Digitalis			
Group	Number of Patients	Number Died	Mortality, per Cent	Number of Patients	Number Died	Mortality, per Cent	Difference in Mortality
General series	404	136	33.7	338	140	41.4	7.7
Pneumococcal complications	24	14	58.3	27	19	70 4	12.1
Series excluding patients with pneumococcal complications	380	122	32.1	311	121	38.9	6.8

A further study along this line is shown in table 7, which compares the mortality of patients with negative and with positive blood cultures. Of 53 patients with positive blood cultures who received digitalis, 42 died, a mortality of 79.2 per cent. Of 54 patients with positive blood culture who did not receive digitalis, 43 died, a mortality of 79.6 per cent, a difference of only 0.4 per cent in patients having positive blood cultures. On the other hand, of 116 patients having negative blood cultures and receiving digitalis, 40 died, a mortality of 34.5 per cent, while of 124 patients with negative blood cultures who did not receive digitalis, 25 died, a mortality of 20.2 per cent. This shows a 14.3 per cent lower mortality for those who did not receive digitalis.

Table 7.—*Comparative Mortality of Patients with Negative and Positive Blood Cultures for Digitalis and No Digitalis Groups* *

	No Digitalis			Digitalis			
Blood Culture	Number of Patients	Number Died	Mortality, per Cent	Number of Patients	Number Died	Mortality, per Cent	Difference in Mortality
Positive	54	43	79.6	53	42	79 2	—0.4
Negative	124	25	20.2	116	40	34.5	14.3

* Patients discharged at their own risk, and patients in the C and D (digitalis treated) series who received no digitalis have been excluded.

Table 8 compares the mortality of patients receiving the three preparations of digitalis and of patients taking none. It will be seen that the average cat unit dose of preparations A and G was 18.4 and 10.4, respectively, while that for preparation B, the misbranded one, was 31.3. It shows that the mortality rate of groups A and G are almost identical, 36.7 and 37.7 per cent, respectively, and that the mortality rate for patients receiving digitalis B is approximately 10 per cent higher, 47.2 per cent.

Table 8.—*Comparative Mortality of Patients Receiving Digitalis A, B and G and of Patients Receiving No Digitalis*

Digitalis	Average Cat Unit Dose	Number of Patients	Number Died	Mortality, per Cent
Specimen B	31.3	142	67	47.2
Specimen A	18.4	90	33	36.7
Specimen G	10.4	106	40	37.7
No digitalis	....	404	136	33.7

We expected an analysis of the latter group to show that the high mortality was due to the toxic effect of digitalis as shown by other evidences of digitalis toxicity, in which case, as is obvious, all patients receiving the drug in toxic dosage should not be considered in the investigation. Much to our surprise, however, we found that the highest mortality came in the group of cases that did not show any of the known toxic symptoms of digitalis but who had received large dosage of the drug. In fact, the analysis of table 9 shows that patients developing signs of digitalis toxicity had not only a lower mortality (27.1 per cent) than patients receiving digitalis and developing no toxic signs (45.1 per cent), but even a lower mortality than patients receiving no digitalis whatever (33.7 per cent).

Table 9.—*Mortality of Toxic and Nontoxic Cases*

Toxic	Number of Patients	Number Died	Mortality, per Cent	Average Cat Unit Dose
Specimen B	61	15	24.6	32 2 C. U.
Specimen A	5	2	40.0*	17.4
Specimen G	4	2	50.0*	8.0
All preparations	70	19	27.1	
Nontoxic				
Specimen B	81	52	64.2	30.6 C. U.
	85	31	36.5	18.5
	102	38	37.3	10.5
	268	121	45.1	

* Numbers too small to be of any significance.

The possibility was considered of having included in the group receiving a large dosage of digitalis a number of patients who had actually received insufficient dosage of digitalis; in table 10 the nontoxic cases are further divided into those which showed positive digitalis effects on the T wave or the P-R interval in the electrocardiogram and those which showed no such effects. This table shows definitely that the higher mortality in the nontoxic digitalis group cannot be attributed to insufficient digitalis, because in the twenty-two patients who did not receive enough digitalis to produce an effect in the electrocardiogram, the mortality is low.

TABLE 10.—*Mortality According to Digitalis Effect All Preparations—Nontoxic Cases*

	Number of Patients	Died	Mortality
Digitalis effect............	246	115	46.7%
No digitalis effect........	22	6	27.3%

Because different preparations were given at various periods of the year and in different wards we have in table 11 compared the mortality rates of patients treated with each preparation of digitalis with those of the untreated patients for the same periods and on the same divisions. Thus the digitalis A cases are compared with the nondigitalis cases in the Third Medical Division up to Jan. 31, 1929, the digitalis B cases with nondigitalis cases of the First and Second Medical Divisions up to Jan. 31, 1929, and cases treated with digitalis G with the nondigitalis cases in all medical divisions after Jan. 31, 1929.

In this table an arbitrary grouping of the nondigitalis groups shows a range in the mortalities of these samples of from 30.8 to 36.4 per cent, a range of 5.6 per cent. The patients in the group receiving digitalis specimen A have a 0.3 per cent higher mortality, those receiving digitalis specimen G 6.9 per cent higher mortality and those receiving digitalis specimen B a 13.3 per cent higher mortality than a group treated under identical conditions and time, but receiving no digitalis.

TABLE 11.—*Comparative Mortality of Digitalis Untreated and Treated Patients According to Preparation Used*

	No Digitalis			Digitalis			
Period	Total	Died	Mortality	Preparation	Total	Died	Mortality
Divisions I and II; until Jan. 31, 1929	177	60	33.9%	Specimen B	142	67	47.2%
Division III; until Jan. 31, 1929	110	40	36.4%	Specimen A	90	33	36.7%
Divisions I, II and III; after Jan. 31, 1929	117	36	30.8%	Specimen G	106	40	37.7%
Entire period..........	404	136	33.7%	All preparations	338	140	41.4%

COMMENT

In the tables presented, in all categories except patients with type II pneumonia there was an increase in the mortality among patients receiving digitalis as contrasted with those who did not receive the drug. When these tables are reanalyzed, the patients receiving digitalis being grouped into those who received toxic dosage of the drug, those who received a digitalis effect but no toxic dosage, and those who showed no evidence of digitalis effect, it would appear that patients receiving enough digitalis to produce an effect on the electrocardiogram but not enough to produce toxic signs had an increased mortality, but on still further analysis it was shown that the increased mortality occurred in that group which received the largest amount of digitalis, irrespective of whether or not they showed toxic digitalis signs. Furthermore there is no evidence, even among the group who received what might be termed optimum dosage, that routine digitalis therapy could reduce mortality. This was true even among a small group of patients with auricular fibrillation who were studied.

In the giving of digitalis to patients with congestive heart failure in organic heart disease there are three guides useful in controlling medication: first, certain actions on cardiac mechanism, as shown clinically by ventricular slowing, or graphically by an increased P-R interval or changes in the T wave; second, the clearing up of signs of heart failure, and, third, the appearance of certain mild toxic phenomena. In pneumonia, on the other hand, except for the lowering of rate in patients who have developed auricular fibrillation there are practically no signs of digitalis effects other than those described in the electrocardiogram by Cohn and Jamieson[1] and toxic effects. The clearing up of signs of heart failure can never be used as a guide.

Since in the congestive heart failure of heart disease untoward effects are rarely if ever seen in patients who have not first developed mild symptoms of toxicity, it had previously been our belief that in patients with pneumonia receiving digitalis careful observation would give evidence of mild toxic digitalis effect before any damage could be done by the drug. This does not seem to be true in the light of our experience. In our cases there is a definite increase in the mortality of patients who received large doses of digitalis but who had none of the clinical symptoms of either early or late digitalis toxemia. May it not be that because of the effects of pneumonia toxin digitalis may produce death not infrequently without any warning signs of the usual clinical manifestations of mild or profound toxicity? If this is true, extraordinary care should be used in the giving of digitalis in pneumonia, for the dose cannot be guided except by an arbitrary limitation of the total dosage.

SUMMARY

There is no evidence that routine digitalis therapy in lobar pneumonia results in a lowered mortality.

In pneumonia patients with sinus rhythm the only consistent evidences of digitalis effect are electrocardiographic changes and mild toxic effects.

About 95 per cent of patients have sinus rhythm throughout the course of lobar pneumonia.

Clinical symptoms of digitalis toxicity are not a sufficient guide in digitalis therapy in lobar pneumonia to prevent increase in mortality when the drug is used. The amount of the drug given is a better guide.

When given in dosage too small to show any effect, it causes no changes in mortality. When given in dosage comparable with the amount usually needed in the treatment of heart failure, it produces effect on the P-R interval and T wave of the electrocardiogram but causes little change in mortality.

Digitalis may perhaps be life saving in an occasional patient in whom there is auricular fibrillation or auricular flutter.

Auricular fibrillation and auricular flutter occur rarely, in less than 5 per cent of all cases. Patients developing this condition frequently recover without digitalis.

It is believed by us that the routine giving of digitalis to patients with lobar pneumonia is dangerous.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GOLD AND DEGRAFF AND DRS. WYCKOFF, DU BOIS AND WOODRUFF

Dr. Frank N. Wilson, Ann Arbor, Mich.: There has been a considerable difference of opinion among cardiologists regarding the advisability of giving digitalis in a routine manner to patients with pneumonia. Those who favored its administration advanced the following arguments: Digitalis has the same effect on the T-wave and the P-R interval of the electrocardiogram in pneumonia that it has in heart disease and in health (Cohn); consequently, pneumonia does not prevent it from producing its characteristic effects on the heart muscle. Auricular fibrillation is not uncommon in pneumonia. The response to digitalis is the same as in fibrillation due to other causes (Cohn). This disturbance constitutes an extra hazard which may be greatly diminished or eliminated by the routine administration of the drug. Roentgen studies have shown that the heart dilates in pneumonia. The dilatation is prevented or diminished by giving digitalis (Levy). The dilatation suggests that the heart muscle is weak; digitalis apparently improves its condition. Those who opposed the routine administration of digitalis in pneumonia did so on the ground that it had not been clearly shown that cardiac weakness played an important rôle in the mortality rate and that, as a general principle, drugs should not be given as a routine but only when the need for them became apparent. Those who favored giving the drug had, perhaps, a little the best of the argument; there was, however, something to be said on the other side. In view of the work which Drs. Wyckoff, Du Bois and Woodruff have reported, it is difficult, so it seems to me, to escape the conclusion that the routine administration of digitalis in pneumonia is dangerous. I should like to ask the authors their opinion regarding patients who have some measure of cardiac failure before they develop pneumonia; whether or not they advocate the giving of digitalis to these. If I understood Drs. Gold and DeGraff correctly, they dealt exclusively with patients who had auricular fibrillation. In such patients digitalis has a profound effect on the heart rate. This effect, which is a very important one in these patients, is due chiefly, not entirely, to the effect of the drug on vagal tone. In patients with normal rhythm, this effect is negligible. It is not known that the vagal and muscular effects of the drug are always parallel. Consequently, conclusions based on the effect of digitalis in one group of patients cannot, so it seems to me, be applied to the other without reservations.

Dr. A. A. Herold, Shreveport, La.: In 1909 I read a paper before our state society in which I advocated the use of digitalis in pneumonia based on the fact that in numerous autopsies we found dilatation of the heart the cause of death in pneumonia. My plea at that time was to give the digitalis and feel the way both by blood pressure readings and by pulse rate, and give it, as Dr. Wilson brought out in summarizing the arguments pro and con, before it is too late, because if one waits for the fibrillation or the dilatation to start or what not and then starts digitalis, there will not be time to get the digitalis effect. That is a point which I would like to ask the authors to bring out in closing. How can a quick digitalis effect be obtained in those cases in which it is indicated if it is not going to be given in a routine manner?

Dr. Harold E. B. Pardee, New York: Drs. Gold and DeGraff have added an important fact to the knowledge of digitalis: the dose to maintain an effect need not be as large as the dose which was necessary to produce that effect. However, in its application to the therapeutics of digitalis, I do not believe that this is so important as it is from the point of view of pharmacology. In treating patients one is usually concerned with maintaining effects against rather considerable odds, and I would feel that in treating a patient it would always be necessary to give the patient the dose which would be close to his therapeutic limit before I would be sure that I had produced the best results of which the drug was capable. In the interpretation of the heart rate of patients with auricular fibrillation, certain sources of error arise, and these have a bearing on the conclusions of Drs. Gold and DeGraff. The chief source of error is that certain patients may have the same heart rate at rest and yet after exercise the heart rate will be increased differently, thereby indicating a different degree of digitalis effect. This may be in part due to an *idiosyncrasy* of the patient but it depends also on the degree of the digitalis effect. If a patient should be found with a heart rate when at rest of 75, which went up to 110 after a certain amount of effort, that patient given more digitalis might still have a heart rate when at rest of approximately 75, and yet after the same effort the rate would increase only to 90. Obviously the patient is in a much better physiologic condition when his heart rate goes only to 90 after exercise than he is when it goes to a higher rate, because exercise occurs constantly in his daily life. The heart rate cannot, of course, be taken as an indication of the degree of cardiac reserve. I believe that these two things also are so independent, in a considerable number of patients, that one must be wary how one draws conclusions from the heart rate as to the degree of cardiac reserve. Therefore, to maintain a constant heart rate when at rest does not necessarily mean that cardiac efficiency is being maintained at a constant level or that the same therapeutic effect of digitalis is being obtained.

Dr. Oscar W. Bethea, New Orleans: I was interested to note that the work on auricular fibrillation substantiated the work of the English physicians in which Lewis, following McKenzie, grouped the auricular fibrillation cases into four divisions: those that would remain normal when reduced to normal, without digitalis; those in which small doses of digitalis would maintain the effect; those in which large doses of digitalis were necessary to maintain the effect, and those in which no dose of digitalis would maintain the effect. I sometimes feel that we of this generation think that we discovered the large dose of this drug. I was interested recently to note that the elder Wood thirty odd years ago, in the United States Dispensatory, spoke of a patient that had received a teaspoonful of tincture of digitalis three times a day for a long period of years and had been maintained apparently in a state of perfect health. With regard to the treatment of pneumonia, I was highly delighted to note the trend of the statistics that were presented to us, particularly as in my paper tomorrow on the treatment of pneumonia, I protest most earnestly against the routine administration of digitalis.

Dr. Harry Gold, New York: In reply to Dr. Wilson's remarks, I wish to say that we used only patients with auricular fibrillation in our study. Slowing of the heart rate in these patients is not due solely to stimulation of the vagus center. The evidence for that was presented many years ago by the results obtained after paralysis of the vagi by atropine in digitalized patients. Furthermore, slowing of the heart rate is only one element in the action of digitalis, and improvement that results in patients with auricular fibrillation is not due merely to slowing of the heart rate. The work of recent years has shown beyond a shadow of doubt that there is no fundamental difference between patients with a regular sinus rhythm and those with auricular fibrillation in the response of their congestive heart failure to digitalis. This suggests that the principles laid down in this study should apply to patients with a regular sinus rhythm. We were studying the response of heart failure to digitalis. Changes in the heart rate, however, yield the most striking graphic representation of the results and that is why we used the heart rate in our illustrations. We stated throughout that these patients improved as completely as possible and that when we gave them twice as much digitalis as they had at the beginning they did not show any greater improvement. I do not know what else one can do to ascertain that the full therapeutic effects of digitalis have been produced. Dr. Pardee's remarks on the relation between dosage and the response of the heart rate to effort are *not* supported by any evidence based on controlled studies. If a patient is given 3 grains (0.2 Gm.) of digitalis daily and marked improvement in the *symptoms and signs of failure results*, and if he is then given 6 grains (0.4 Gm.) daily with no signs of greater beneficial effects, it is probable that he does not need the 6 grains, but that 3 grains is sufficient. Dr. Pardee states that he prefers to give the larger doses. It is not justifiable to give patients twice as much digitalis as they need as a matter of personal preference, especially since we do not know what other actions, harmful or otherwise, the drug may exert in the body.

DR. JOHN HENRY WYCKOFF, JR., New York: In reply to Dr. Wilson's query about patients who have congestive heart failure or have heart failure before they develop pneumonia, I think that such patients should be treated as any other patients with congestive heart failure; they should be given digitalis. Dr. Herold asked how patients might be rapidly digitalized if such was necessary when routine digitalis therapy was not used. In cases of sudden death in pneumonia it seems to me that it is doubtful whether digitalis medication would ever be of value; for example, such a condition as ventricular fibrillation. But when heart failure does occur, as in the presence of auricular fibrillation, digitalis is probably indicated. Such an effect can be obtained by giving it by mouth in six to eight hours, or in one or two hours by the intravenous use of ouabaine. As to the value of digitalis in preventing cardiac dilatation, if digitalis does prevent such dilatation it should have had that effect in patients treated in this series as digitalis medication was begun as soon as possible after admission.

THE DRINKER RESPIRATOR

ANALYSIS OF CASE REPORTS OF PATIENTS WITH RESPIRATORY FAILURE TREATED FROM OCTOBER, 1928, TO JUNE, 1930 *

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In a series of papers published in THE JOURNAL[1] and elsewhere[2] we have given a description of the construction, operation and application of an electrically driven device for the prolonged administration of artificial respiration. As the result of considerable experience in the use of the apparatus in certain hospitals in Boston, New York and Philadelphia, various technical improvements have been made and a small respirator has been developed especially for the initiation of respiration of babies who breathe either with difficulty or not at all at birth. Both types of respirator, in their latest form, are shown in the accompanying illustrations.

Essentially, the respirator consists of a sheet metal tank equipped with a comfortable bed and mattress. The patient's head protrudes through a flat soft rubber diaphragm or collar attached to the body of the respirator, the rubber collar making an air-tight seal about the patient's neck. The diameter of the collar is adjustable, and thus excessive tension on the neck of the patient is avoided.

By means of electrically driven blowers and an appropriate valve arrangement, the air pressure within the tank is changed alternately from a few centimeters negative pressure to normal atmospheric pressure. The negative pressure induces inspiration—the chest and diaphragm of the patient expand and air is inhaled. The return to atmospheric pressure allows the normal tone of the respiratory muscles to cause expiration. Both the size and the rate of breaths taken are under control of the attendant and can be measured (or recorded) by means of a suitable U-tube manometer, filled with colored water and connected by rubber tubing to the body of the respirator.

In general, negative pressure of about 12 to 18 cm. of water suffices to maintain adequate ventilation in an adult or child with complete respiratory paralysis. In the case of new-born babies in which respiration does not begin within a few minutes after birth, lower negative pressures (from 8 to 10 cm.) have been found adequate.[3] Our experience indicates that the negative pressure used should be sufficient merely to prevent cyanosis or obvious respiratory distress—nothing is gained by using excessive negative pressures for long periods, while we have reason to believe that such pressures actually do harm to the lung tissue, particularly in the case of infants whose lungs may be atelectatic.[4]

Without having the pump stopped, the patients can eat, drink and sleep while in the respirator. A bed pan can be passed through one of the port-holes, enemas can be given, and rectal drips can be administered in deglutition cases. The noise of the machinery, although not excessive, is sufficient to prevent the use of a stethoscope in chest and heart examinations. We have taken roentgenograms of patients' chests both while the respirator was running and when the bed was pulled out and the pump stopped.

ANALYSIS OF CASE REPORTS

At this writing, June, 1930, twelve adult-sized respirators are in use in New York hospitals and two in Boston hospitals. One child's and three infant's respirators are in the Children's and Lying-In hospitals in Boston and two infant's respirators are in use in the University and Lying-In hospitals in Philadelphia. In all, approximately forty adult patients have been treated in New York; six adults, six children and about twenty-five infants (full-term and premature) in Boston, and three infants in Philadelphia. As the result of the simplification of the apparatus, treatment in the respirator has become more or less routine hospital procedure and does not require specialized attention on our part. It has therefore become increasingly difficult to obtain complete records of all cases treated. Our analysis consists of a brief summary of cases in which we have complete information and which we believe to be of interest to the medical profession.

Acute Anterior Poliomyelitis: Of seven desperate cases of respiratory failure treated, four have been described in THE JOURNAL.[1] Of the final recovery of one of these, B. H.,[1] Dr. Frank R. Ober, consulting orthopedic surgeon to the Peter Bent Brigham Hospital, Boston, May 24, 1930, writes:

> It is impossible to say about B. H.'s ultimate recovery. When I first saw him on Sept. 26, *1929* [thirteen days after admission to the Peter Bent Brigham Hospital] he had a paralysis of practically every one of his skeletal muscles including the

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* Read before the Section on Preventive and Industrial Medical and Public Health at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[1] Drinker, Philip; and McKhann, C. F.: The Use of a New Apparatus for the Prolonged Administration of Artificial Respiration, J. A. M. A. **92**: 1658-1660 (May 18) 1929. Wightman, H. B., and Shaughnessy, T. J.: A Case of Respiratory Failure Successfully Treated in the Drinker Respirator, ibid. **93**: 456-457 (Aug. 10) 1929. Shambaugh, G. E., Jr.; Harrison, W. G., Jr., and Farrell, J. I.: Treatment of the Respiratory Paralysis of Poliomyelitis in a Respiratory Chamber, ibid. **94**: 1371-1373 (May 3) 1930.

[2] Drinker, Philip; and Shaw, L. A.: An Apparatus for the Prolonged Administration of Artificial Respiration: I. A Design for Adults and Children, J. Clin. Investigation **7**: 229-247 (June 20) 1929. Shaw, L. A., and Drinker, Philip: Ibid. **8**: 33-46 (Dec. 20) 1929

[3] Murphy, D. P., and Coyne, J. A. The Use of a Modified Drinker Respirator in the Treatment of Asphyxia Neonatorum, J. A. M. A. **95**: *335 (Aug. 2) 1930*

[4] Murphy, D. P.; Farber, Sidney; Drinker, C. K., and Drinker, Philip. Unpublished data.

muscles of his neck, back, thorax and abdomen, but not complete. His worst lesion was thoracic and abdominal. Associated with this paralysis he had marked tenderness of the lower extremities due to the peripheral neuritis which is so often associated with poliomyelitis. His chest expansion was less than one-half inch. October 3, his chest expansion was three-fourths inch and on October 10 it was 1⅛ inches. October 17, he was removed from the tank and his chest expansion dropped back to three-fourths inch. The tenderness in his leg muscles persisted until December 21, when physical therapy was started. He developed mild adduction contractures of both shoulders from exquisite tenderness and from the position in the tank. October 24, we put him back in the tank for short periods with the idea that the tank would relieve the fatigue of the chest muscles.

Today the contractures of his shoulders are about two-thirds eliminated and the power in the shoulder muscles is increasing. The power in his leg muscles has increased sufficiently so that he is able to walk about the house without any brace. His trunk muscles are still very poor, which interferes with his balance in walking. His chest expansion is now 2 inches. Crutches were necessary for some time but he no longer needs them except that he uses one to go up and down stairs, and he ought to be able to discard that.

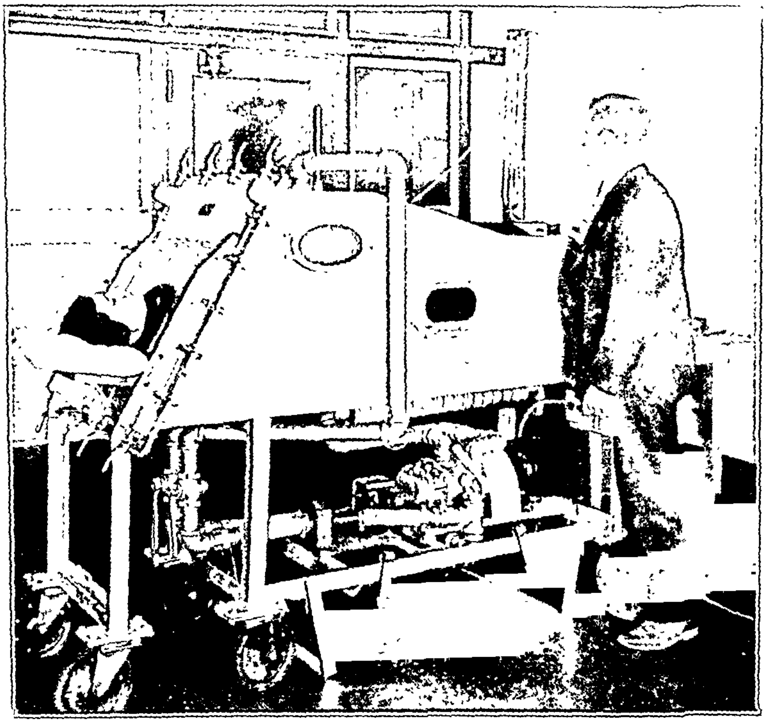

Fig. 1.—Adult-size respirator, showing rubber collar about patient's neck. The attendant is observing on the manometer the pressure within the respirator.

This boy has made a very marked and definite improvement since I first saw him in September. He has had daily physical therapy and only a slight amount of walking in the past few weeks and has had almost constant rest since he was first seen. He ought to gain constantly for an indefinite period. As to complete muscular recovery, I do not know, but functional recovery ought to be nearly normal.

A second case of poliomyelitis, in E. B., a boy, aged 10, has not yet been reported in the literature. Dr. Kenneth D. Blackfan of the Children's Hospital, Boston, and professor of pediatrics, Harvard University Medical School, under date of June 13, 1930, has written us about this child as follows:

I believe you should have the history of E. B., a boy of 9 years [on admission], who was treated in your respiration machine during the acute stage of infantile paralysis.

This boy was in good health until Sept. 16, 1929, when he complained of headache and stiff neck. He went to school but came home almost immediately and went to bed. He was feverish, irritable and nervous. That night he complained of pain in his back and he slept poorly. His condition remained about the same the next day. The third day a physician was called to see him. The diagnosis made at that time was infantile paralysis, established by the history, and paralysis of the left arm. September 19, the paralysis had spread to involve both arms and the intercostal muscles.

The child was seen at 2:30 a. m. by Dr. Aycock of the Harvard Infantile Paralysis Commission, who reported that the patient was "prostrated; flushed; restless; tremor. Rigidity of neck and spine; neck retracted; marked paralysis of both arms, paralysis of intercostal muscles; temperature 99.6 F.; pulse 138. Lumbar puncture: Pressure 200 mm. 'ground glass' appearance; cell count 112." Dr. Aycock obtained an ambulance and took the child and his father to the Children's Hospital (about seven hours' drive).

On admission, the boy's respirations were rapid and diaphragmatic in character. The chest did not move at all with inspiration. By this time the extremities had also become involved. He was removed to the respiration room, where he stayed for sixteen days. Throughout this time he was placed periodically in the respiration machine, spending about half the time in the machine during the first week and about one third of the time in it the second week.

While this boy at the time of admission was not in urgent need of artificial respiration, the effect of the assistance rendered by the machine was considered most beneficial as indicated (1) by the fact that the boy slept hardly at all outside the machine but would fall into a deep sleep as if exhausted when the assistance of the machine was given him; (2) the anxious attitude which he manifested when outside the machine was replaced by a sense of security; (3) the respirations were rapid, from 40 to 50, outside the machine, but were very much slower inside; lastly, and most important, after the first experience in the machine the boy periodically asked to be put in.

In the treatment of this child, negative pressure only was used, most of the time at — 14 centimeters. The pressure was run to — 30 occasionally, which disturbed the boy the first time it was done, but later he desired it this way when first put in the machine. The rate of artificial respiration was 35 the first day and from 25 to 30 thereafter.

Gradually his muscles returned so that it was no longer necessary for him to be kept in the tank and after the sixteenth day he was removed to the ward. Subsequently he was transferred to the orthopedic service, where treatment in the respiratory tank was continued in order to increase the chest expansion, and thus, if possible, to protect him somewhat against congestive, respiratory infections.

The subsequent course of the child has been given us by Dr. Arthur T. Legg, of the Children's Hospital, Boston, and Harvard Infantile Paralysis Commission, June 11, as follows:

When he was transferred to the orthopedic service E. B. had but one-half inch chest expansion. He was placed in the respirator periodically to rest the involved muscles and in the hopes that the action of the machine would develop chest expansion. At present he is able voluntarily to expand his chest 2¾ inches. He has not had any sign of a cold.

Four weeks ago I started another patient in the respirator. His paralysis began in 1927 and he had marked intercostal involvement. He has had many colds since that time and pneumonia on two occasions. He had an expansion of half an inch a month ago, since which time we have had him in the respirator twice a day (for a month). He now has a voluntary expansion of 1½ inches.

I believe the machine is going to be a wonderful asset in the after-treatment of intercostal muscles following infantile paralysis.

Our failures so far indicate that in bulbar involvement the respirator is apt to be ineffective. Also we have found that it is of the utmost importance occasionally but regularly to change the patient's position in order to prevent pulmonary congestion. For adults this means the development of a team, preferably of men, who call at scheduled times and do the necessary lifting and moving of the patient. At other times, a nurse in constant attendance has been found to be essential.

In general, it appears that respiratory failure in acute poliomyelitis is relieved and cyanosis is prevented. Whether or not a patient acutely ill will recover as the result of the respirator's having tided him over the most critical part of the illness is unpredictable.

Gas Poisoning (carbon monoxide).—In the emergency ward of the Bellevue Hospital, New York, the respirator is used two to three times each month (thirty-one cases since May, 1929). Of the forty cases in New York, seventeen have been gas poisoning (carbon monoxide). Nine of the patients recovered and were discharged from the hospital. In every instance inhalations of 95 per cent oxygen and 5 per cent carbon dioxide or 93 per cent oxygen and 7 per cent carbon dioxide were used before placing the patients in the respirator. Generally (and always in the emergency ward of the Bellevue Hospital), the oxygen and carbon dioxide mixture is used with the respirator when the patient is unconscious or when there is any evidence that the gas mixture is beneficial.

Most of the carbon monoxide cases are the result of attempted suicide, generally complicated by serious ill health. They are not typical "gas poisoning" cases. The usual type of accidental carbon monoxide poisoning can be treated fully as well by the oxygen and carbon dioxide inhalation method alone as by the respirator.

Alcoholic Coma.—Eight patients, seven in New York and one in Boston, were diagnosed as suffering from alcoholic coma and placed in the respirator when other resuscitative measures had proved inadequate. In two cases, this diagnosis was complicated by the presence of drugs, and in one by carbon monoxide as well, and in another by a fractured skull. Of the eight patients treated, three recovered.

Drug Poisoning (morphine, heroin, barbital).—In New York, five patients with drug poisoning were treated in the respirator in the Bellevue Hospital. Of these, three recovered and one regained consciousness but died two days later. Of the three who recovered, the first had been reported in The Journal.[5]

Drowning.—One patient, a man, aged 45, was treated in the Bellevue Hospital. He recovered and was discharged.

Postoperative Respiratory Failure.—A woman, aged 22, was operated on for scoliosis. She had had poliomyelitis when a child, recovered, but grew up markedly deformed and with inadequate upper respiratory muscular control. At the time of her operation her normal respiratory rate was about 30; she was examined carefully and thought to be a good surgical risk. The operation (Hibbs') lasted approximately one and one-half hours. For the next two or three days she was anxious and apprehensive, with some cyanosis. On the eleventh day she became badly cyanosed and was unconscious when placed in the respirator. She regained consciousness quickly and then fell into a deep sleep. Because her heart was weak, pulse rapid and breathing dyspneic she was treated in the respirator constantly for ten days and at night for about one month; then she took naps in it twice daily for several weeks more. After two months she was taken home, although the condition of her heart was unsatisfactory. She died suddenly about three months after her operation. In this particular case it was apparent that the respirator always relieved cyanosis and caused a fall in pulse rate. When she was placed in the machine, her pulse rate would be about 140 and would gradually drop to about 120. So far this is the only case we have had in which the respirator apparently had a direct effect on the heart action.

Asphyxiation of the New-Born.—We are in entire agreement with the conclusions reached by Wachenfeldt[6] in the treatment of the axphyxiated new-born and particularly of premature infants, as shown in his recent discussion of the use of Thunberg's modified baby barospirator; namely, that there is a field for the device in the treatment of new-born babies in whom respiration is not initiated by the usual means.

Murphy and Coyne[3] have shown that natural respiration may be entirely absent for as long as one hour and eight minutes and only partially restored at the end of two hours and seventeen minutes, during all of which time the baby was kept alive in the respirator. At the end of the two hour treatment the baby gradually resumed normal breathing and the respirator was stopped. The same investigators have shown also, and with this Wachenfeldt seems in agreement, that artificial respiration in atelectatic premature infants is extremely difficult. Whether the respirator has application in this problem we are in doubt, but it is hoped that cases of premature infants that have been treated will be reported later. Of such cases there are now a considerable number, but we cannot, at present, give the details.

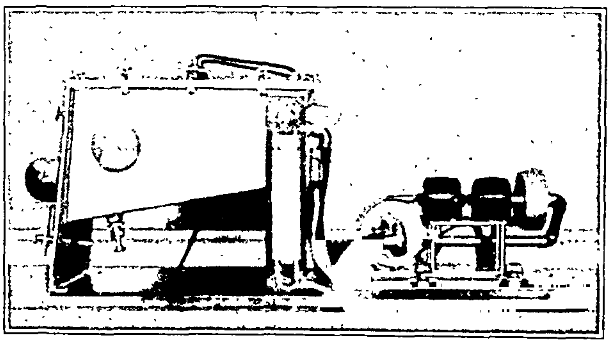

Fig. 2.—Baby-size respirator containing doll. The head end is hinged so that the angle of inclination of the baby may be adjusted; two 40-watt lamps are attached inside to furnish light and heat. Pump and valve are shown on the right.

We are indebted to Dr. Stewart H. Clifford, assistant visiting pediatrician to the Boston Lying-In Hospital, for the following account of the action of the respirator on a new-born baby:

> A baby was born, severely asphyxiated, at the Boston Lying-In Hospital, May 26, 1930. The family history was unimportant. The mother was at full term and delivery had progressed in a normal fashion until the fetal pulse fell from 120 to 40 beats per minute. In order to save the baby the membranes were ruptured, an episiotomy was performed, and the baby was delivered without difficulty by pressure on the fundus.

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[5] Wightman and Shaughnessy (footnote 1).

[6] Von Wachenfeldt, S.: Von der Wiederbelebung [illegible] scheintoter Kinder Versuche mit Thunberg's Barospirator (On the Resuscitation of New Born, Apparently Dead, Children: Experiments with Thunberg's Barospirator), Acta [illegible] et gynec. [illegible] 1930.

At birth the baby was intensely cyanotic and the usual methods of resuscitation failed to stimulate respiration. After three or four minutes the baby was thought to be beyond hope but was placed in the respirator. The baby had not so much as gasped but as soon as the respirator was started the cyanotic color disappeared, and after three minutes the baby gave one gasp. The respirator was kept in operation for one and a half hours with the baby gasping every one to three minutes before he was able to maintain his own respiration. When the machine was stopped the respirations continued to be shallow and rapid. During the next eight hours the respirations ceased twice and the baby became intensely cyanotic, necessitating the use of the respirator.

Twelve hours after birth the baby was transferred from the respirator and lived for four days. During this time there were frequent cyanotic attacks and convulsions with breathing of the Cheyne-Stokes type. Lumbar, subdural and ventricle punctures showed normal fluid. Over the skin there were numerous petechiae but the rest of the physical examination was negative.

On the fourth day pneumonia developed, and the next day the baby died.

There was a postmortem which confirmed the clinical diagnosis of intra-uterine asphyxia with petechial hemorrhage into the various organs including the respiratory center.

Obviously this particular infant had no chance to live and I send you this note merely to show the action of the respirator on an asphyxiated infant.

COMMENT

We have often been asked: "What are the contraindications for the use of the respirator?" or, again, "Can it do harm?" We believe that contraindications are simply those of observing the patient's reaction to the respirator. If the patient is not suffering from respiratory difficulty or is not cyanosed, there is generally no point in using the respirator. If the patient does not respond to the treatment and does not spontaneously breathe in synchronism with the machine, the artificial respiration may actually interfere with his voluntary breathing and certainly does no good. Even in the case of conscious patients who are frightened and apprehensive but badly cyanosed, we have experienced no great difficulty in putting them into the respirator. A patient can be transferred from a bed or stretcher to the respirator very easily in less than one minute by inexperienced persons.

In many instances morphine has been given to patients who are already in respiratory difficulty but are apprehensive of the machine and are restless. This treatment has proved effective, especially in poliomyelitis, but obviously it is to be used only when the respirator is immediately available or when the patient has already been placed in it.

In the treatment of infants who do not respond to the customary respiratory stimuli at birth, the respirator seems particularly applicable. In such instances the machine must be near at hand, preferably in the delivery room or a room adjoining. A sufficient number of patients have been treated to indicate that, for the newborn, the respirator has a very useful field.

ABSTRACT OF DISCUSSION

Dr. Reginald Fitz, Boston: One of the most dreaded complications of acute poliomyelitis has been respiratory paralysis. One patient whom I saw would certainly have died had it not been for Dr. Drinker's machine. A young man with respiratory failure from infantile paralysis entered the hospital. He was at once put in the respirator. He soon was able to describe the benefit he received by it. When he was first taken out of it, he became apneic. Gradually he grew better and after living in the machine for a few weeks was able to be out of it for a few minutes at a time without discomfort. Now he is perfectly all right as far as his respiration is concerned. I believe that this machine is going to have considerable clinical importance in the future, especially in any general hospital that is likely to have an accident room service, for it is in the accident room that emergency cases will enter with various types of inability to breathe. Certainly, in acute poisoning cases in which there is respiratory failure the machine ought to be of distinct practical value, for in these it is largely a question of tiding the patients over a comparatively short time before recovery occurs. If there are to be epidemics of infantile paralysis in the future, hospitals treating such cases should be equipped with the respirator. One life saved is worth a lot, and it is comforting, at least, to have something in the line of rational therapy to offer those cases of respiratory failure which heretofore were doomed. I was rather doubtful about the machine at first. It looked cumbersome, it was noisy, and it seemed more like a torture chamber than anything else, but certainly the one boy that I saw get well in it entirely convinced me as to the practical value of this method of giving artificial respiration.

Dr. W. Lloyd Aycock, Boston: From the point of view of the ultimate outcome of the disease, paralysis may be divided into two kinds: Permanent paralysis, certainly due to the destruction of the motor cells in the spinal cord, and temporary paralysis, undoubtedly due to a temporary interference with nerve cells which are not actually destroyed. Temporary paralysis is seen in all parts of the body. Every patient with infantile paralysis who survives undergoes improvement to a greater or less extent in the actual amount of paralysis. One of the most striking examples of temporary paralysis is seen in a type of case which is becoming more frequent; namely, paralysis of the swallowing mechanism. Many of these patients are completely unable to swallow for four or five days, after which they recover entirely. When temporary paralysis involves a group of muscles that are not absolutely essential to life, there is no danger to the patient. A patient can live five days without swallowing. But when the paralysis involves a vital group of muscles, such as the muscles of respiration, the patient cannot survive cessation of the use of these muscles for any length of time. As a matter of fact, when the intercosal muscles and the diaphragm become paralyzed, these patients undertake to give themselves artificial respiration by means, first, of their neck and shoulder muscles, and then the muscles of the mouth. Of course, they cannot keep this up for any length of time. Many devices have been tried for aiding the patient with this artificial respiration. None have ever been successful, owing, primarily, to the violation of the principles of respiration, and, secondly, to the fact that one is dealing with a perfectly conscious patient who realizes his breathing difficulty and who will not permit any muzzling of his face when he is in this condition. Early in Dr. Drinker's work on this machine, we were fully convinced that it might serve the desired purpose in infantile paralysis, and we have used it in several cases. We can't predict in any case whether there will be a return of function. None of the signs or symptoms give any indication of the ultimate extent or outcome of paralysis, so the best we can do is to give all these patients the benefit of the doubt. Some of them undoubtedly will resume their muscle power while others may not. It may seem like an emergency measure that cannot be made available to any extent, but with a few of these machines stationed at central points, it is not difficult to get a patient to the machine. I was called to Vermont last fall to see a suspected case back in the hills. I found this boy with a beginning intercostal paralysis. We got him to Boston, a matter of a seven hours' ride, and into this machine. He had been lying awake for many hours; as soon as the machine started he fell sound asleep. We stopped the machine and immediately he woke up. We started it again and he went back to sleep. We tried this several times. This boy has now made quite a remarkable recovery. The point is that in respiratory paralysis the patient has to use voluntary effort to keep up breathing. To one whose job it has been to sit by these gasping, moribund patients, to see them immediately take on the aspects of a perfectly well person when placed in the respirator is gratifying.

Dr. Millard Knowlton, Hartford, Conn.: I should like to ask Dr. Drinker the cost of the apparatus.

Dr. William R. Redden, New York: In 1927, a rescue squad which I had trained in Youngstown, Ohio, was called on to give artificial respiration to a victim of Landry's paralysis which had gradually involved the diaphragm. The men continued artificial respiration for about twenty-eight hours during which time the victim remained conscious. Eventually, as was to be expected, he died. The description members of the rescue squad gave me of the discomfort and even agony that this victim suffered from the application of artificial respiration by manual pressure made me realize that any type of apparatus such as Dr. Drinker has developed has marked value. In the case mentioned, and in similar cases, the Schaefer method of artificial respiration is out of the question because no conscious person can tolerate the amount of pressure used in this method for more than an hour, at least not without great shock. For this reason, none of the usual forms of artificial respiration are used, but the victim is placed on his back in a comfortable position on a table or bed, and then manual pressure is applied simultaneously at the anterior costal margin by two operators, one standing on each side. Even this greatly modified manual pressure method soon becomes almost unbearable for the conscious victim. Therefore, any type of respiratory failure which may require prolonged artificial respiration, but especially those in which the victim remains conscious, should be treated as soon as possible in a machine like Dr. Drinker's, which does no damage to the victim, which causes no pain or distress, and which even allows the victim to sleep. Aside from its use in respiratory failure, let me suggest that sleepless patients, instead of being given drugs, be put in this machine and the blood overoxygenated, and I am sure they will drop off to sleep without trouble.

Philip Drinker, Ph.D., Boston: Answering Dr. Knowlton's question about cost, the adult size machines are sold for $2,000. Dr. Redden mentioned Landry's paralysis. Recently I was called in an emergency to the Boston City Hospital and used the respirator in a case of Landry's disease. All we accomplished was to make the woman comfortable; she died gradually. I understand that in Landry's paralysis recovery is unknown. I did not mention that we know the apparatus can do harm under certain conditions. This we found through animal experimentation and not on patients. We curarized animals and then subjected them to more pressure than was necessary merely to sustain life. If the animal lay tilted head downward we found we could use higher negative pressures than if the animal lay horizontally. As a result, we have arranged the baby respirator so that excessive pressures cannot be obtained and do not let the baby machines go to hospitals until the danger from using excessive pressures is understood. In animals examined post mortem the damage, if any, is grossly apparent in the dependent portions of the lungs. Patients remaining in the respirator for twelve hours or longer require a trained crew who can either take them out, turn them over and put them back in the machine again, or else, if the space within the machine permits, put in side boards by the patient's side and tilt him first to one side and then to the other, just as one would in postoperative recoveries.

Medicine and Science.—The practice of medicine in its broadest sense includes the whole relationship of the physician with his patient. It is an art, based to an increasing extent on the medical sciences, but comprising much that still remains outside the realm of any science. The art of medicine and the science of medicine are not antagonistic but supplementary to each other. There is no more contradiction between the science of medicine and the art of medicine than between the science of aeronautics and the art of flying. Good practice presupposes an understanding of the sciences which contribute to the structure of modern medicine, but it is obvious that sound professional training should include a much broader equipment.—Peabody, F. W.: Doctor and Patient, New York, Macmillan Company, 1930.

LYMPHATIC LEUKEMIA

WITH GENERALIZED FOLLICULAR ERUPTION OF TUBERCULOMATOUS ARCHITECTURE *

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An extensive literature has accumulated on the classification and interpretation of diseases of lymphatic origin. Cutaneous reactions occur in both general types of leukemia but are notably more common in the lymphatic variety.

Cutaneous and subcutaneous changes are occasionally noted at some time during the course of many diseases of the hematopoietic system. This is especially true in that closely allied group of diseases designated by Keim[1] as the lymphoblastomas, including leukemia, mycosis fungoides, lymphosarcoma and Hodgkin's disease. Arndt,[2] in 1914, classified the visible expressions of the leukemias in two classes: first, the diffuse or circumscribed true lymphadenoses and, second, a multiform type of lesion which did not represent a true leukemic infiltration and which was indistinguishable from the toxic dermatoses of different origin. The latter were designated as the leukamids. It is concerning this class that much further elucidation is needed. The following case is reported for the reason that the unusual relationship of a blood picture of a

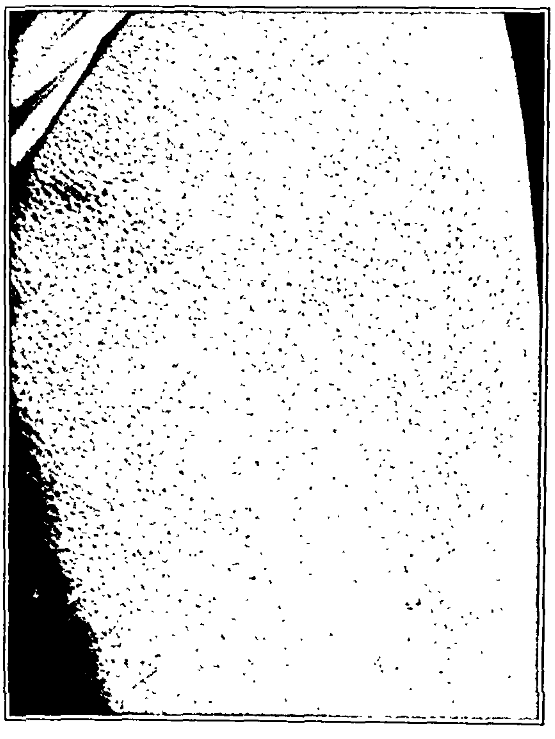

Fig. 1.—Follicular papular eruption on inner aspect of left thigh.

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* From the department of dermatology under L. L. Schwartz, M.D., and George J. Busman, M.D., the Mercy Hospital.

* Read before the Section on Dermatology and Syphilology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

[1] Keim, H. L.: Universal Leukemia Cutis, Arch. Dermat. & Syph. 10: 579 (Nov.) 1924. The Lymphoblastomas, ibid. 19: 533 (April) 1929.

[2] Arndt, G.: Diseases and New Growths of Lymphatic Origin, J. A. M. A. 63: 1265 (Oct. 10) 1914.

chronic low grade lymphatic leukemia and a papular eruption of tuberculomatous structure may add something to clarify this picture.

REPORT OF CASE

History.—J. M., a white woman, aged 53, American born, a housewife, had had the usual diseases of childhood and typhoid at 20; otherwise her personal history was unimportant. Her mother and father had both died, but the cause was not elicited. Three brothers were living and well. She had no sisters. There was no history of tuberculosis, cancer, nephritis, syphilis or insanity.

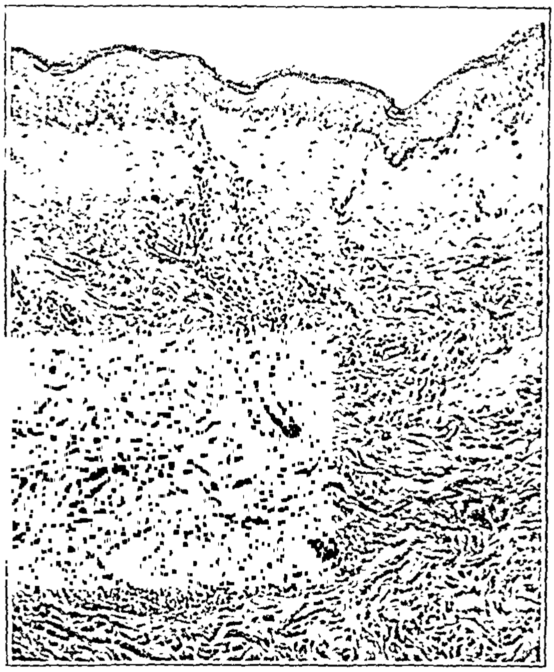

Fig. 2.—Infiltrate about the sweat duct and vessels and early formation of epithelioid cells in the lower cutis; × 100.

Present Illness.—The present illness began in the spring of 1926. It began as a slight follicular papular eruption on the trunk. The patient did not consult her physician regarding it until June, 1928, at which time she also suffered with backache. Laboratory tests at that time revealed a negative blood Wassermann test and a negative urinalysis. Blood examination revealed hemoglobin, 98 per cent; red blood cells, 4,930,000 and white blood cells, 20,900 per cubic millimeter. The differential count showed; polymorphonuclear leukocytes, 22.5 per cent; lymphocytes, 77.25 per cent, and basophils, 0.25 per cent. Roentgenograms of the lumbar and sacro-iliac regions showed no evidence of abnormality in the bones of the lower dorsal or lumbar region. The joint margins of the sacro-iliac joints showed an increase in bone density suggestive of bone sclerosis, which might lead one to believe that there existed a chronic arthritis involving the sacro-iliac joints. Dental roentgenograms were made of all teeth, and three periapical abscesses were revealed. These teeth were promptly extracted and the abscesses removed by curettement, July 31, 1928, she was referred to us by David M. Bell, M.D., of Canonsburg, Pa.

Cutaneous Examination.—The entire skin surface of the trunk, arms and legs was covered with a fine follicular papular eruption (fig. 1). The individual lesion was a very small keratotic papule, capped with a small horny spine which could be removed only with considerable difficulty. Each papule was surrounded by a small margin of erythema. Over the arms, legs, upper back and neck, the lesions were all distinctly discrete. On these areas, the lesions resembled very much the characteristic papules of keratosis pilaris. The papules were more closely studded and more abundant on the flexor surface of the extremities rather than over the extensor (keratosis pilaris) surface. On the lower part of the trunk (around the back and abdomen) the spines appeared to have been rubbed off. The papules were larger and flatter, and there appeared more of a tendency to but no actual confluence of lesions. Also here they were yellower or more apple jelly-like in quality. The face, palms, soles and the dorsal surfaces of the fingers and toes were free from lesions. There was no caputal, pubic or axillary alopecia. The condition was only mildly pruritic and there was no thickening or excoriation or trauma due to excessive scratching.

Physical Examination.—The patient was of medium height, weighed 135 pounds (61.4 Kg.) and was well nourished. The eyes, ears, nose and mouth were normal. The thyroid gland was not enlarged. There was a single, discrete, palpably enlarged gland in the left anterior cervical chain. Other glands were not enlarged. Her heart and lungs were normal except for a mild atherosclerosis not unusual in patients of her age. Her liver was palpable at the costal margin. The spleen was enlarged to percussion only. Laboratory study showed a basal metabolic rate increased 9 per cent; urinalysis was normal; the phenolsulphonphthalein excretion was 39 per cent in two hours; the nonprotein nitrogen was 31.5 mg. per hundred cubic centimeters; urea nitrogen, 11.5 and blood sugar 97. Blood examination showed: hemoglobin, 80 per cent; erythrocytes, 5,650,000 per cubic millimeter; white blood cells, 24,400. The differential count was: polymorphonuclear neutrophils, 12 per cent; eosinophils, 1 per cent; small lymphocytes, 83 per cent; large lymphocytes, 3 per cent, and transitionals, 1 per cent. Many cells were embryonic in type.

The diagnosis of a consultant internist was that of "typical chronic low grade leukemia." The patient was presented before the Pittsburgh Dermatological Society, and Hollander[3] voiced the opinion of those present that it was a most unusual and interesting case. A section of skin containing many typical papules was removed for study.

Pathologic Examination.—The following report was submitted by Dr. H. H. Permar, pathologist of the Mercy Hospital:

Macroscopic History: The specimen was of a small elliptic piece of skin from the chest, measuring 1 by 0.5 cm. and having a thickness of 0.5 cm. The material was received after fixation, and in that state it failed to show the small superficial lesions noted in the clinical history.

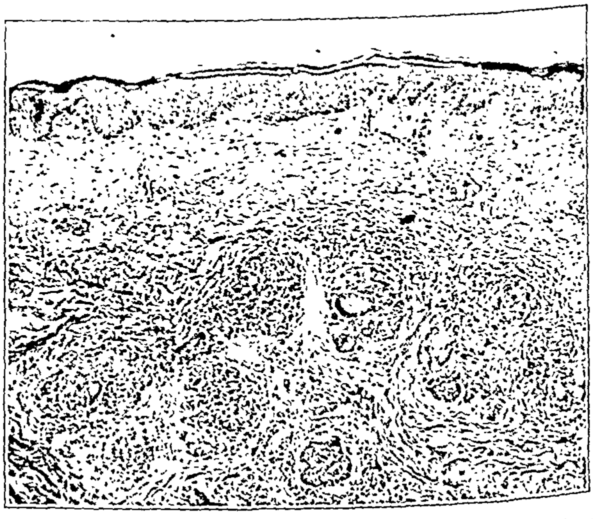

Fig. 3.—Typical tuberculoid structure. The tubercle at the left shows early central caseation. A hair follicle is shown in the lower center; × 100.

Microscopic History: Sections of the skin showed foci of chronic inflammation which were clearly granulomatous in type (fig. 2). They lay in the corium and tended to be fairly close to the epidermis. (In one place the papillae of the malpighian layer were distinctly flattened over the inflammatory area, and the epidermis was thin with some increase in the amount of keratin [figs. 3, 4 and 5].) This probably represented one of the small keratotic papular lesions.

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[3] 3. Hollander, Lester: Transactions of the Pittsburgh Dermatological Society, Arch. Dermat. & Syph. 19: 326 (Feb.) 1929.

The granuloma had the classic histologic picture of miliary, submiliary and early conglomerate tuberculosis. The inflammatory nodules were made up of flattened or ovoid epithelioid cells having an irregularly concentric arrangement about small centers of early caseation necrosis (fig. 6). Typical Langhans giant cells were located eccentrically in the nodular foci and were not seen in every one. The larger foci showed a few polymorphonuclear leukocytes lying in the areas of early caseation necrosis. Zones of lymphocytes encircled the rounded masses of epithelioid cells, and just beyond these the nodules were demarcated by a zone of fibrous tissue. The vessels of the corium showed collections of lymphocytes and plasma cells lying in the perivascular lymphatics and in the stroma about them; and the sweat glands were surrounded by similar cell collections, again evidently in lymphatics (figs. 7 and 8). An occasional small lesion, perfectly characteristic of a miliary tubercle, was found along the course of the lymphatics in the corium, often at some distance from the larger foci.

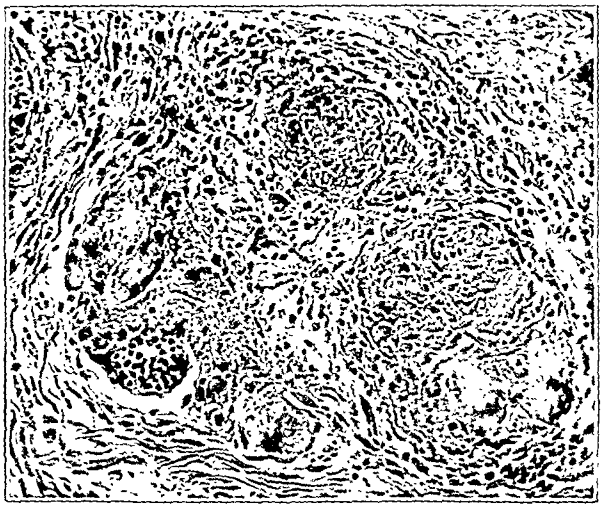

Fig. 4.—A portion of figure 3. Note lymphatic or blood vessel in lower left hand corner which is packed with immature white blood cells; × 225.

The diagnosis was tuberculosis of the skin of the chest.

Treatment, Clinical Notes and Progress.—Although we were unable to demonstrate whether the pathologic blood picture was the primary disease and the skin expression secondary or vice versa, we felt as the internist and hematologist did that we were dealing with a leukemic syndrome. From her first visit, July 31, to Aug. 27, 1928, only internal tonic medication and local soothing applications were administered.

She was then given four one-half skin unit roentgen-ray exposures, one half of the body surface being irradiated weekly such that the total consisted of one skin unit to the entire body surface. Following this treatment there was an initial rapid fall in the white blood count. The differential count also showed a rise in polymorphonuclear leukocytes and a fall in lymphocytes. At the time the smear also showed many degenerating white blood cells, largely of the lymphocytic type. There was likewise a corresponding resolution in skin lesions and less itching.

September 27, intramuscular injections of spleen extract were begun. These were continued for a total of twenty-four semiweekly, weekly or biweekly injections. During this period the patient's blood picture gradually became normal, as shown in the accompanying table.

COMMENT; DIFFERENTIAL DIAGNOSIS

Cutaneous and subcutaneous changes have been so frequently reported in connection with the lymphoblastomas that we consider it needless here to enter into a complete discussion of these various cutaneous expressions in the form of leukamids and true leukemic infiltrations so ably described by Arndt, Keim and others.

In no case that we have reviewed has there been described a skin lesion associated with a leukemic blood picture which showed the clinical or histopathologic architecture of our case. The blood picture is definitely that of a chronic lymphatic leukemia. This point of view was substantiated by Dr. George Kastlin, hematologist at the Mercy Hospital. The histologic picture is not that of a true leukemic infiltration of the skin. The pathologic changes in the circumscribed type consist of a dense infiltrate of small or large lymphocytes, located principally around the blood vessels, the follicles and glands. There is an edematous zone of noninfiltrated tissues between the reticular layer and the epidermis; a very little increase in connective tissue, and a loss of elastic tissue and pilosebaceous structures in the larger tumors. In the diffuse type of leukemia cutis, the pathologic changes are quite similar except that the infiltrative process is general. The leukamids are associated with but do not present a histologic picture of a true leukemia. They are supposedly the result of an intoxication from the underlying leukemia and show themselves as petechiae, papules, vesicles, wheals, nodules, pigmentation, exfoliation or a simple general pruritus. In no instance have we found a description of a leukamid as a spine capped papule with a histologic picture of tuberculosis.

Gans [4] describes the leukamids as nonspecific reactions in myelosis and lymphadenosis. He says, "The nonspecific variety bears but loose relationship to the underlying disease and needs further elucidation."

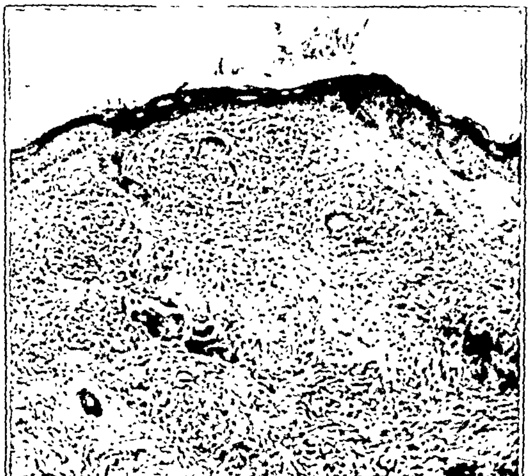

Fig. 5.—Taken where the epidermis was flattened and it showed several tubercles, one near the hair follicle. × 75.

It is of interest here to refer to the study of Michelson [5] on the occurrence of tuberculoid reactions in the inguinal glands in early syphilis. Of twenty-nine cases of early syphilis in which the inguinal glands were examined, tuberculoid reactions were observed in eight. Two types of tuberculoid reactions were noted, the so-called epithelioid or indurative tuberculoid structure involving almost the entire node, and a second type likened to that found in miliary tuberculosis.

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[4] Gans, Oscar: The Skin Picture in Hematopoietic Diseases, Arch. Dermat. & Syph. 16:1 (July) 1927.

[5] Michelson, H. E.: The Occurrence of Tuberculoid Reactions in the Inguinal Glands in Early Syphilis, Arch. Dermat. & Syph. 19:66 (Jan.) 1929.

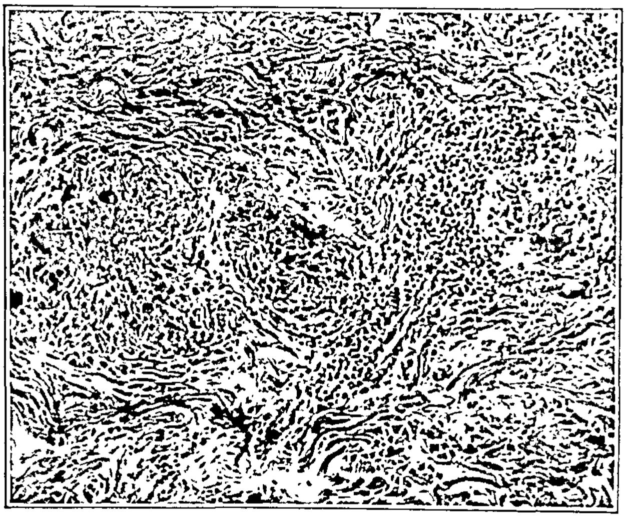

Fig. 6.—On the left, tubercle with early central caseation necrosis; epithelioid cells about the blood vessel in center, and a perivascular infiltrate of cells of the lymphocytic series, extending diagonally across the right side; × 150.

Professor Bloch [6] in discussing this report, stated that this structure was not specific for a tuberculous infection but that it could be found in many diseases, such as in leprosy, tertiary syphilis, sporotrichosis, trichophytosis and blastomycosis. He says, "The rule that tuberculous structures are found not only in tuberculosis but in many other infections, when allergic conditions are present, is not sufficiently known and considered by pathologists."

Clinically the lesions are rather suggestive of a generalized lichen scrofulosorum. The papules were follicular and capped by a horny spine. Around the lower trunk there was some tendency to flattening. The lesions were yellowish and waxy in color and covered by minute scales. On the other hand, there was no tendency whatever to grouping. Also the eruption was almost uniformly distributed over the entire trunk and extremities. The age of the patient was somewhat over the usual age incidence of lichen scrofulosorum. Careful clinical and roentgen examination failed to reveal any evidence of active or healed tuberculosis.

Histologically, the sections showed numerous giant cells and caseation necrosis. Pusey [7] states that "most observers have demonstrated the presence of giant cells, but other elements of the typical tuberculous process, such as coagulation necrosis and caseation, have not been observed in lichen scrofulosorum." Wise [8] and Michelson [9] reported that small areas of caseation occurred in some cases but that ordinary inflammatory changes are found more frequently than the tuberculoid structure. Plasma cells are rare.

Towle and Swartz,[10] in studying the blood count in tuberculosis of the skin in twenty-five cases, report the total white count ranging from 7,000 to 15,000. The average normal was 10,360. The polymorphonuclears ran as low as 1,320 and as high as 10,530. The average was 6,392. The highest lymphocyte count was 8,760, the lowest 4,000, with an average of 3,299. Mononuclears were low, with a total average of less than 300. These figures seemed to agree with the figures in internal tuberculosis.

Pityriasis rubra pilaris must be considered in the differential diagnosis of a general follicular papular dermatosis of this type. In our case there were no lesions of the proximal phalanges, nor was there any alopecia. The lesions were discrete, with no tendency to coalescence at the end of two years' duration. The true tubercular histopathology and blood picture also do not fit in with this condition.

The blood picture of a chronic lymphatic leukemia and the tuberculomatous architecture of the skin lesions differentiate it from such conditions as lichen planus, lichen nitidus, lichen spinulosus, follicular syphilids, trichophytids and other follicular papular dermatoses.

The case is unique in that it showed the blood picture of a chronic lymphatic leukemia associated with a follicular papular cutaneous eruption with a true tuberculomatous structure. We are unable to demonstrate positively which one of the two pictures was primary. The case can be argued as one of a chronic lymphatic leukemia and the skin picture as a leukamid. Although the leukamids are supposedly toxic or allergic expressions of the underlying blood dystrophy, little is known of the actual histopathology of these lesions. In view of Michelson's observations in syphilis and Bloch's reference to tuberculoid reactions to allergy, it is logical to presume that the tuberculomatous structure of the cutaneous lesions in our case is an expression of an allergic nature.

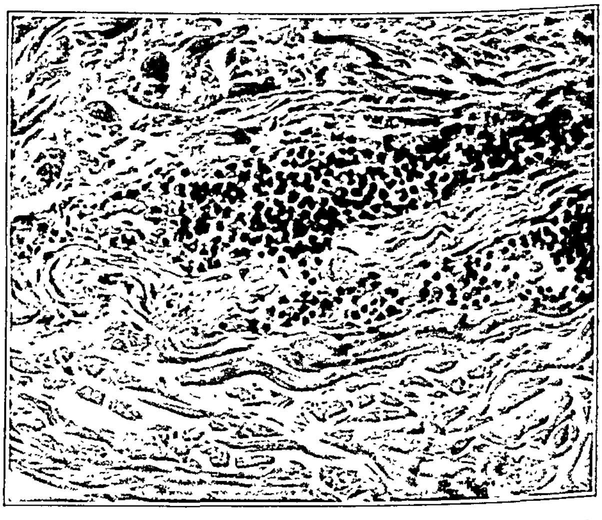

Fig. 7.—Character of the infiltrate about the arrectores pilorum muscle; × 300.

Considering the existence of a mild lymphocytic leukocytosis in cutaneous tubercular structures, one must analyze the condition as a tubercular skin eruption, possibly generalized lichen scrofulosorum. The histopathologic architecture in which there is tubercle formation with giant cells and coagulation and caseation necrosis, so dominant a feature, is not that of the usually accepted pathology of lichen scrofulosorum. The abnormally high leukocyte count is out of proportion to blood counts reported in association with cutaneous tuberculosis. Also, the age of the patient, the absence of grouping, and the lack of any collateral evidence of tuberculosis argues against the skin picture as being the primary feature in this case. The associated blood and clinical picture reasonably excludes the other follicular papular cutaneous possibilities.

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[6] Bloch, in discussion on Michelson (footnote 5).

[7] Pusey, W. A.: The Principles and Practice of Dermatology, ed. 4, New York, D. Appleton & Co., 1924.

[8] Wise, Fred: Miliary Tuberculosis of the Skin, Lichen Scrofulosorum, and Papulotuberculosis, J. Cutan. Dis. **37**: 105 (Feb.) 1919.

[9] Michelson, H. E.: Lichen Nitidus, Arch. Dermat. & Syph. **7**: 763 (June) 1923.

[10] Towle, H. P., and Swartz, J. H.: A Study of the Blood in Some Common Diseases of the Skin, Arch. Dermat. & Syph. **9**: 554 (May) 1924.

Regarding the almost miraculous response to treatment we are unable to conclude whether the entire course of progress was the result of the roentgen treatments or of the subsequent injections of spleen extract. The use of spleen extract in allergic dermatoses was first reported by Leo von Zumbrusch[11] of Munich. Having observed that splenectomized animals and eczematous patients both have eosinophilia, and that roentgen stimulation of the spleen resulted in improvement of eczematous lesions, an albumin free extract of hog spleen was administered with astonishing results to patients with eczematous lesions. Paul[12] reported striking results from the use of spleen extract in a series of cases of eczema, urticaria, pruritus ani, asthma, lichen planus, miliaria and psoriasis.

Beinhauer[13] obtained a rapid relief of pruritus and a sharp decrease in eosinophilia in a series of cases in which spleen extract was used. Although our case did not show an appreciable eosinophilia, the possible allergic tuberculomatous type of skin lesion associated with the blood picture of a hematopoietic disease led us to use spleen extract as a therapeutic agent.

SUMMARY

We report an unusual case with a generalized follicular papular eruption. The individual lesion was a discrete keratotic papule capped by a small horny spine and surrounded by a narrow erythematous margin. The histopathologic structure was that of miliary, submiliary and early conglomerate tuberculosis.

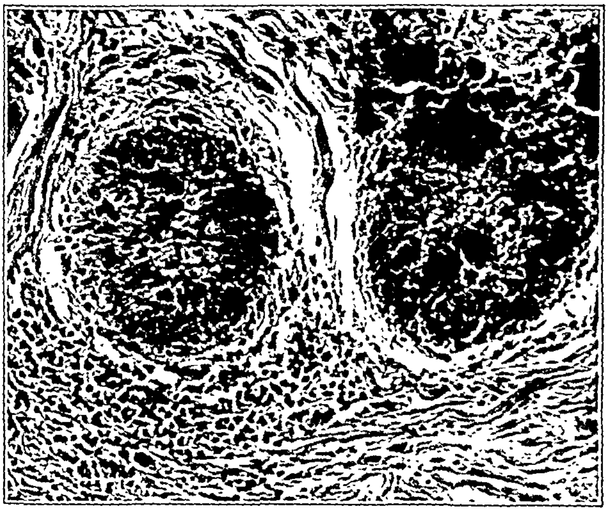

Fig. 8.—A poor photomicrograph which shows early central zone of caseation and peripheral zone of lymphocytes about one of the tubercles; × 250.

There was an associated blood picture of a typical chronic low grade leukemia. The blood showed: hemoglobin, 80 per cent; erythrocytes, 5,650,000; white blood cells, 24,400 per cubic millimeter. The differential count was: polymorphonuclear neutrophils, 12 per cent; eosinophils, 1 per cent; small lymphocytes, 83 per cent; large lymphocytes, 3 per cent, and transitionals, 1 per cent.

Treatment and Blood Picture Chart

Date	Treatment	Hemoglobin, per Cent	Red Blood Cells	White Blood Cells	Polymorphonuclear Neutrophils, per Cent	Basophils, per Cent	Eosinophils, per Cent	Small Lymphocytes, per Cent	Large Lymphocytes, per Cent	Transitionals, per Cent
6/ 4/28	....	98	4,930,000	20,900	22.5	0.25	..	77.25		
7/31/28	....	80	5,650,000	24,400	12	..	1	83	3	1
8/20/28	....	..	....	19,900	19	..	1	52	23	5
8/30/28	X-ray............	..	....	20,300	23	..	..	67	15	5
9/ 4/28	X-ray.............	..	....	13,700	38	..	..	46	11	5
9/10/28	X-ray									
9/13/28	X-ray.............	..	....	12,300	40	..	2	50	3	5
9/27/28	Spleen extract 1 cc.	..	....	12,300	43	..	2	46	7	2
10/ 1/28	Spleen extract 1 cc.									
10/ 4/28	Spleen extract 2 cc.	..	....	12,200	49	0	0	42	7	2
10/ 8/28	Spleen extract 2 cc.									
10/11/28	Spleen extract 2 cc.	..	....	9,250						
10/16/28	Spleen extract 2 cc.									
10/19/28	Spleen extract 2 cc.	..	....	10,550	53	0	1	40	3	3
10/23/28	Spleen extract 2 cc.	..	....	9,600						
10/26/28	Spleen extract 2 cc.	..	....	7,500						
11/ 2/28	Spleen extract 2 cc.	..	....	9,600						
11/ 9/28	Spleen extract 2 cc.	..	....	8,500	45	..	3	40	8	4
11/14/28	Spleen extract 2 cc.									
11/21/28	Spleen extract 2 cc.	..	....	8,800	53	..	..	40	5	2
11/28/28	Spleen extract 2 cc.									
12/ 5/28	Spleen extract 2 cc.	..	....	8,600						
12/12/28	Spleen extract 2 cc.									
12/20/28	Spleen extract 2 cc.	..	....	8,400	66	0	6	20	6	2
1/ 9/29	Spleen extract 2 cc.	..	....	7,500						
1/23/29	Spleen extract 2 cc.									
2/ 6/29	Spleen extract 2 cc.	..	....	7,400	58	1	2	31	7	1
2/22/29	Spleen extract 2 cc.									
3/ 8/29	Spleen extract 2 cc.	..	....	7,000						
3/20/29	Spleen extract 2 cc.									
4/12/29	Spleen extract 2 cc.	..	....	6,900						
6/ 4/29	Spleen extract 2 cc.	..	....	8,100	60	0	4	20	12	4
7/22/29	Spleen extract 2 cc.	..	....	7,000						
10/ 9/29	....	90	....	9,250	52	..	3	32	10	3
11/ 2/29	....	..	....	6,800						
12/ 6/29	....	..	....	7,000						
1/29/30	....	100	4,580,000	7,900	55	0	0	22	11	9
4/ 9/30	....	85	4,100,000	7,500	60	0	1	30	5	1

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11. Von Zumbrusch, Leo: The Question of Eczema and the Exudative Diathesis, Urol. & Cutan. Rev. 31: 750 (Dec.) 1927.

12. Paul, T. M.: The Instantaneous-Physiologic Cure of Eczema and Urticaria, Urol. & Cutan. Rev. 33: 724 (Nov.) 1929.

13. Beinhauer, L. G.: Personal communication to the authors.

After roentgen-ray exposure of one skin unit in divided doses to the entire skin surface, there was a rapid decrease in leukocytosis and improvement in the relative percentages of white blood cells.

During and after a total of twenty-four semiweekly, weekly, or biweekly injections of spleen extract, the cutaneous and blood pictures returned to normal and have remained so after eighteen months' observation.

Clinically the skin lesions were rather suggestive of a generalized lichen scrofulosorum. However, the absence of grouping, the age of the patient, the failure to demonstrate active or healed tuberculosis, the true tuberculous histopathologic architecture, and a lymphatic leukocytosis out of proportion to that of general and cutaneous tuberculosis in our opinion ruled out this diagnosis.

We cannot prove whether the blood picture was the primary pathologic change and the skin expression secondary, or vice versa. In view of the fact that tuberculous structures are found not only in tuberculosis but also in many other infections, when allergic conditions are present, we believe that this case is one of a chronic, low grade, lymphatic leukemia in which the cutaneous eruption is that of a leukamid with a definite tuberculomatous architecture.

515 Grant Street.

ABSTRACT OF DISCUSSION

Dr. Hamilton Montgomery, Rochester, Minn.: Transitions between all the various forms of lymphoblastoma can occur. Many cases of lymphatic leukemia, however, remain typically such throughout the course of the disease. The skin manifestations of lymphatic leukemia may be divided into two groups: (1) true leukemic infiltrations of the skin (leukemia cutis) and (2) toxic reactions (leukamids). The authors' case presents certain features of extraordinary interest not only from the clinical but also from the pathologic point of view. The histopathologic features are open to various interpretations concerning which there probably would not be a uniformity of agreement between different pathologists. I believe the case represents a true leukemia cutis in which a tuberculoid reaction is occurring. Sections of the skin revealed numerous tuberculoid nodules, many of them centered about a blood vessel, simulating the microscopic picture of a sarcoid or a tuberculosis cutis indurativa. In several areas, however, the adjacent lymph vessels were packed with lymphocytes and lymphoblasts. There was also a dense infiltrate of immature and mature lymphocytes about arrectores pilorum muscles and also about a sweat duct. This case, therefore, differs from the usual types of leukemia cutis. These may be divided into: (1) the discrete nodular type with or without ulceration; (2) the diffuse erythematous type (malignant erythroderma), and (3) those rare cases in which there are true leukemic infiltrations in and about the blood vessels in the skin with as yet no macroscopic or clinical evidence. I know of only one case of lymphatic leukemia in which a tuberculoid reaction occurred in the skin. Ramozzotti (*Giorn. ital.* **70**:1283, 1929; abstr. *Zentralbl. f. Haut- u. Geschlechtskr.*, April 20, p. 374) describes a typical case of lymphatic leukemia in which there developed lesions which clinically and histologically were papulonecrotic tuberculids and in which the tubercle bacillus was demonstrated. This suggested to the author a tuberculous etiology for both diseases. In the authors' case, however, I believe the more plausible interpretation is that a tuberculoid reaction developed as the result of true leukemic infiltration of the skin, thus simulating the reaction seen in various forms of cutaneous syphilis, in which a tuberculoid reaction is frequently encountered but the etiologic agent is proved to be *Spirochaeta pallida*.

Dr. Fred Wise, New York: The authors' case is one of extreme interest, both from the clinical and from the histologic aspects. It demonstrates better than any case I have seen for a long time the futility, in certain instances, of trying to base a diagnosis on clinical grounds alone, no matter how expert a clinician the physician may be. I am sure that any one who sees a picture of this type would be unlikely to recognize the condition on clinical grounds. I should like to ask whether guinea-pig inoculations and tuberculin tests were performed, and whether there is any relationship between this picture and the famous case reported by Bruusgaard in which he was able to demonstrate tubercle tissue in biopsies from almost any area of the involved integument.

Dr. George J. Busman, Pittsburgh: As to whether or not this lesion may be due to two entities, it may be. At first we thought of a generalized lichen scrofulosorum, but the case is unique in that the blood picture has remained normal for several months and the lesions have dissolved. If this is leukemia, it is a question of what effect the spleen extract had. We are trying it in other cases. Guinea-pig inoculations and sections stained for tubercle bacilli were negative.

OUR EIGHTEENTH CENTURY METHOD OF TREATING SUPPURATIVE OTITIS MEDIA

A CRITICISM AND A REMEDY *

JOHN A. PRATT, M.D.
MINNEAPOLIS

In the past and present methods of treating suppurative otitis media, the most important factor, drainage, seems to have been ignored.

The first principle in surgery has always been, "Where pus is present, evacuate and establish drainage." In suppurative otitis media, if nature has not ruptured the drum, it is incised; but few follow up the next step and encourage continuous drainage. It is this one important step of continuous drainage on which success or failure depends.

If it were possible to drain a suppurating middle ear, attic, antrum and the mastoid cells through the eustachian tube, mastoidectomies would be very rarely performed. When the eustachian pathway is not sufficient, drainage must be established through the drum or the mastoid bone.

Following this thought of continuous drainage, a review was made of thirty-nine books dealing with diseases of the ear, published from the year 1888 until 1929. Only three of these books suggested frequent changing of cotton in the ear canal and not one of them described the method of application. Twenty of them spoke of irrigations only. Four recommended irrigations with drying of the canal. Nine gave irrigations with drying and a gauze pack for the first twenty-four hours. Three ignored any line of cleansing.

From 1911 to 1929, only three papers on suppurative otitis media were read in the American Academy meetings and only one in the meetings of the American Medical Association. Of the eleven discussions on a paper by Dr. Wolfe in 1923, mine was the only one mentioning continuous drainage.

Until Dr. M. C. Fox wrote a paper in 1929, there had been no reference made to the use of continuous drainage in suppurative otitis media since 1906: at least I have been unable to find any.

In a review of 192 papers written on middle ear diseases, published in the eye, ear, nose and throat year books from 1906 to 1929, 152 papers were negative in reference to ear cleansing. Twenty-five recommended irrigations; 6, from one to many dryings; 3, irrigations with gauze pack for the first twenty-four hours; 3, twenty-four hour gauze packs only; 2, aspirations; 1, gravity drainage.

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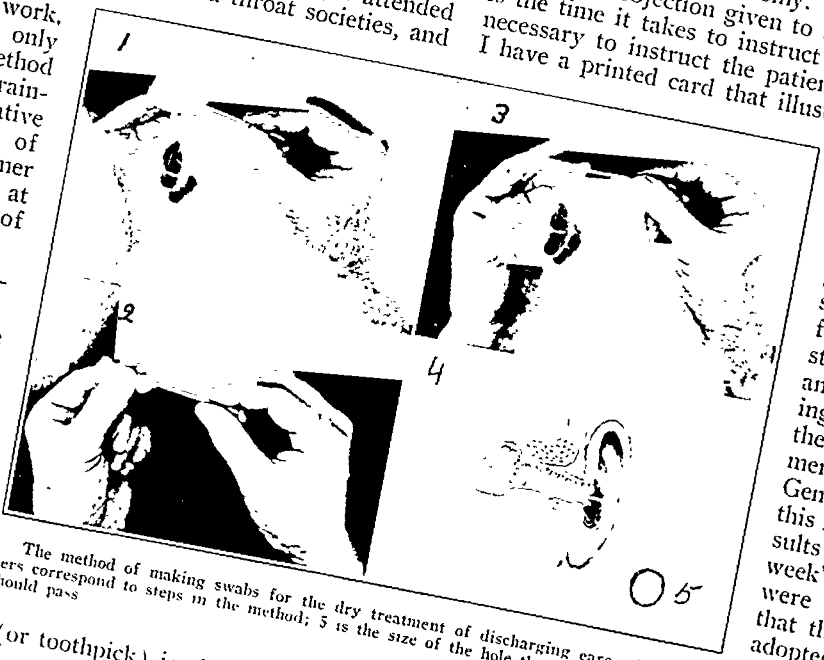
* Read before the Section on Laryngology, Otology and Rhinology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

This is not a criticism of any of the innumerable methods of treatment but of the method of drainage used after pus begins to flow into the external auditory canal.

If some still believe that medicine can be dropped into a pus-filled middle ear cavity, they should do it but should also use drainage. Continuous drainage does not interfere with any line of treatment.

The powerful suction of capillary attraction is well known. It is the use of this well known force that is employed in the dry treatment of suppurative otitis media. With a well made, elongated swab of highly absorbent cotton, all fluids in continuity can be drained. In following this fact, I have been using continuous drainage of the middle ear for the past twenty-five years, with what I consider remarkable success.

Starting January 6 of this year, at Houston, Texas, and ending March 25 at Vancouver, B. C., I attended ten meetings of eye, ear, nose and throat societies, and met hundreds of men doing special work, and yet found only two using the method of continuous drainage in suppurative otitis media, one of these being a former student of mine at the University of Minnesota.



The method of making swabs for the dry treatment of discharging ears. The numbers correspond to steps in the method; 5 is the size of the hole through which the swab should pass

METHOD OF TREATMENT

To make the swabs for the dry treatment of suppurative otitis media, the following method is used:

1. A small piece of absorbent cotton is laid on the tip of the first finger of the left hand; then the end of an applicator (or toothpick) is placed in the center of the cotton.

2. The thumb is placed lightly over the cotton and applicator (or toothpick); then with the right hand, the applicator is twirled away from one, leaving a small space between the thumb and the first finger to shape the cotton.

3. The cotton is now an evenly wound swab, about 1½ inches long.

4. The swab on the applicator is now inserted in the ear canal down to the drum and the discharge wiped out. When the canal is dry, a swab is left in the canal and this *must touch the drum*. To remove the applicator, one finger is placed on the cotton, the applicator is slightly turned in the opposite direction to loosen it, and then it is withdrawn.

5. The swab must be made small enough to pass through a medium sized ear speculum.

6. The swab should be changed as often as it is half filled with discharge, whether five minutes or five hours, the object being to suck the discharge out of the middle ear cavity as rapidly as it is formed.

The pain present in suppurative otitis media is due to the pressure of the discharge confined in the middle ear and antrum of the mastoid. With the dry treatment, one is able to remove the pus and so relieve the pressure pain. With the patient in the office for an hour, one can determine the proper outline for the treatment of the case.

It will be found necessary in acute cases to change the swabs night and day for the first forty-eight hours. The reward is a rapid recovery, free from pain, the reduction of the septic condition and avoidance of mastoiditis.

There is no doubt that the use of dry treatment and proper mastoidectomies in acute suppurative otitis media would banish chronic suppurative otitis media.

The reaction of the discharge and of the patient t the treatment is an indication of when and when no to perform a mastoidectomy.

The one objection given to this method of treatment is the time it takes to instruct the patient. It is rarely necessary to instruct the patient after the second day. I have a printed card that illustrates and describes the method of making and applying the swab. This card is given to the patient.

While in Los Angeles this winter, I spent every morning for two weeks instructing the interns and nurses and treating the patients in the outpatient department of the County General Hospital by this method. The results of the first week's treatment were so satisfactory that the method was adopted for the hospital by the eye, ear, nose and throat staff.

1753 Medical Arts Building.

ABSTRACT OF DISCUSSION

Dr. Austin A. Hayden, Chicago: The statements that Dr. Pratt makes in his paper are startling. They certainly are to me. He contemplates what I regard as continuous suction, or capillary action, through a cotton plug rather loosely fitted into the external auditory canal, and often done by the patient himself. Based on an experience, as I understand, of twenty-five years, and having treated a considerable number of cases in that time, he states that the pain is promptly relieved, suppuration is dried up, and chronicity is prevented. It seems to me that is a large order. It is a statement that I think will arouse a good deal of doubt in the minds of a great many men here The author's thesis is clear, his argument is lucid, and the paper admits of little discussion as I see it. The answer must be to try it for oneself. We have the word of an experienced otolaryngologist backed by wide experience with these cases to the effect that startling results have been obtained through a method that perhaps we have not used, at least according to the definite technic that he has followed. I might say that I doubt whether Dr. Pratt's results will be repeated by other men, but if they are a long step forward has been accomplished by this paper in the treatment of ear suppuration. If these results are not obtained by some of us when we return home we shall have to conclude that we have listened today simply to an interesting and enthusiastic report of clinical observations which we ourselves after a fair trial have been unable to reproduce.

Dr. Don M. Campbell, Detroit: One must admit at once that the ideal of perfect surgical drainage after incision or spontaneous rupture of the tympanic membrane in acute suppurative otitis media is most desirable, and one would like to agree with the author that the proper management of acute middle ear conditions and proper mastoidectomy in acute suppurative otitis media would banish chronic suppurative otitis media. However, the carrying out of such a program is not without some difficulty, for the following reasons: First, the natural timidity of people about putting anything smaller than their elbow in the ear will be found to be a deterrent to the following out of the directions in the introduction of the drain in home treatment for both cleansing and drainage. Second, the frequent introduction of the cotton applicator into the external auditory canal, down to and in contact with the drum membrane, in many cases will be found to be quite disagreeable, if not painful. On account of the extra sensitiveness of the canal and the inflamed tympanic structures this will no doubt militate somewhat against the exact carrying out of the directions by the patient in the home treatment. Third, there might be something said about the possibility of introduction of secondary infection by the continuous application of cotton-covered applicators, for though they may start sterile they might easily become infected before they reach the auditory canal and drum. Fourth, the treatment, if carried out in the office, is a time-consuming method which, of course, should not be allowed to interfere with the carrying out of such a treatment, if it can be shown that the result to the patient justifies the expenditure of time. From the surgical standpoint the use of an ideal form of drainage in the management of middle ear and mastoid diseases is highly desirable.

Dr. John F. Barnhill, Indianapolis: Adequate drainage of suppurating cavities is one of the oldest and most valuable principles of surgery. Any plan whereby free, continuous drainage from a discharging middle ear is secured is an accepted principle in otology, for unobstructed exit of the aural discharge is essential to prevent pain, hasten restoration of the infected tissue to normal, and prevent extension of the disease to adjacent structures. The author speaks of lack of proper directions in textbooks concerning methods of draining discharging ears. I feel that his statement in this respect can scarcely be justified by facts, since most modern textbooks are full and explicit on this point. In my publications on the subject I have not only described the necessity for drainage sufficiently but have in addition illustrated the methods of incision very fully. Concerning the use of the cotton cylinders as the best means of securing continuous drainage, I should have some fear that the patient in the process of inserting these with his own hands might infect them and thus reinfect the middle ear and prolong the discharge. The laity, even when instructed, seldom give strict attention to antiseptic procedures when treating themselves. I cannot agree with the statement that any known plan of treating an acute discharging ear will positively insure the patient against complications. Free drainage will usually do this, but there are instances of acute aural infection, as that following scarlet fever, in which the character of the pathogenic organism is such that complication takes place almost from the beginning, and all efforts fail to check the progress.

Dr. Francis V. Gowen, Philadelphia: During the acute stage I make a wide incision into the drum membrane and keep it open by irrigation, reincising as often as is necessary. Since the infection reaches the ear from the nasopharynx by way of the eustachian tube, a shrinking solution is dropped into the nostrils, aerating the nasopharynx, as advised by Coates, followed in five minutes by an antiseptic solution. This treatment eliminates the ideal culture mediums of the nasopharynx, viz., darkness, moisture, food and heat, destroys the bacteria in situ, and also promotes eustachian drainage. After the acute stage, prophylactic measures are instituted, adenoids and diseased tonsils are removed, and submucous resection and middle ear turbinectomy are done, if indicated. Necessary and conservative treatment as advised by Skillern is applied to the lower turbinates. Any other conditions supplying food for bacteria or preventing proper aeration of the nose and nasopharynx are remedied.

Dr. Lyman Richards, Boston: Those who are called on to deal with these conditions in the average outpatient clinic must devise some form of treatment that can be carried out at home. The time cannot be spent with these patients that physicians do in the office. Consequently, parents must be instructed as to any local treatment that seems feasible. One of the difficulties encountered has been mentioned by Dr. Campbell, matters of great reluctance on the part of parents to insert any cleansing object to the proper depth in the auditory canal. This difficulty has led me to adopt the use of a special short meshed wick, manufactured originally as a remnant from a twine mill, which, having a high capillary reaction like a lamp wick, tends to facilitate drainage from the needle here. Once properly inserted into the canal it needs changing only at intervals of forty-eight hours or more, for which procedure the child can return to the outpatient clinic. In the meantime a small piece of cotton placed on the outside where the wick comes out of the external auditory meatus can be frequently changed by the parent, thus promoting free drainage and at the same time maintaining cleanliness and comfort. This wick is efficacious principally and the discharge is serosanguineous. When it becomes purulent, the wick tends to float out with the discharge, and some form of irrigation will prove more efficacious.

Dr. Harold M. Hays, New York: One of the chief things to be considered in infections of the middle ear is the amount of drainage, and repeated observations should be made to see whether the original incision in the drum is sufficiently large for drainage. If the discharge from the ear canal is profuse, it is not necessary to insert anything into the canal to increase the discharge. All such cases should be under daily observation, preferably in the office if the patient is ambulatory, so that careful examination with an otoscope can be made in order to note the condition of the incision and particularly to note whether there is pulsation. All know that it makes little difference how large the original incision is, for within twenty-four hours most of it closes up. Rather than performing multiple incisions in the drum, one can keep the original incision open by inserting an electrical otoscope tightly into the ear canal and sucking in and out through a piece of tubing attached to the otoscope. There are certain adjuvants to treatment that are more than worth while. A small child can be placed in front of an irridescent lamp, or such a lamp can be suspended over a crib for an hour or so at a time. Patients coming into the office can be treated by inserting a small wick of cotton immersed in a mentholated solution into the ear canal and having such patients sit in front of an infra-red lamp. I shall be most happy to try Dr. Pratt's treatment in the office but can hardly feel that a lay person can be properly instructed to use it at home.

Dr. Emil Amberg, Detroit: I think Dr. Pratt's treatment, under certain circumstances, is excellent, and, like the last speaker, I would commend it, but not in the office. That is the point to which I would object in acutely infected ears. I think that a patient with such an ear should be in bed and has no business to come to the office. If the eardrum is incised and the patient put to bed, the results will be much better and there will be fewer complications. I also deprecate the introduction of irritating substances into the acutely inflamed ear after incision. The patient should have a rest, nature should be given a chance, and insult should not be added to injury. Therefore, I urge that these patients be sent home and not allowed to come to the office every day, but kept in bed and watched.

Dr. J. A. Pratt, Minneapolis: If the treatment is tried as I have described it I think it will be adopted. The people must be educated; I showed that they can be in Los Angeles last winter. In reference to the aseptic part, the patient is instructed to wash his hands, that is all. If others are doing it for the patient, they are simply told to wash their hands and keep clean. If care had to be taken about every germ that came along, no one would eat or sleep in a month. But one can keep away from terrific infection. Work in the dispensary has shown that the results are marvelous. The paper was not dogmatic. I did not say there would not be chronic suppurating ears or mastoidectomies or anything of that kind. I said that if this was done there would be less likelihood of chronically affected ears; and in my opinion they will not occur because it is the infectious material that is allowed to stay there that brings on the chronic case. This has been used in all the ear cases at the state university and dispensary, and the results are marvelous. I may be considered radical, but one who had seen the hundreds of cases that I have would think differently about it. All I ask is that it be given a trial.

Clinical Notes, Suggestions and New Instruments

POLYCYSTIC KIDNEYS WITH BILATERAL NEPHROLITHIASIS *

Alexander Hamilton Peacock, M.D.
and
Donald G. Corbett, M.D.
Seattle

Polycystic kidneys are always spectacular, on account of their unusual size, the fact that nine out of ten are bilateral, and the limitations of surgery that can be safely employed.

The occurrence of calculi in this type of kidney is scarcely mentioned in the literature. Thomas [1] reported a case of staghorn calculus in a kidney presenting multiple cysts but not polycystic. In discussing this case, Greene [2] stated that he saw a case of staghorn calculus in a polycystic kidney; no operation was done. He quoted Sieber as also having seen 8 cases of calculi in 220 polycystic cases and Braasch as having seen 4 calculi in 31 cases of polycystic disease.

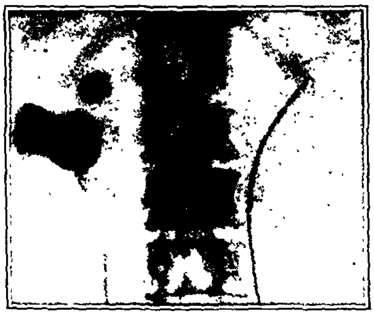


Fig. 1.—Multiple calculi in polycystic kidney.

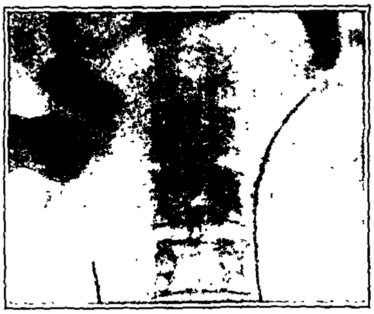


Fig. 2.—Double pyelogram of polycystic kidney containing bilateral calculi.

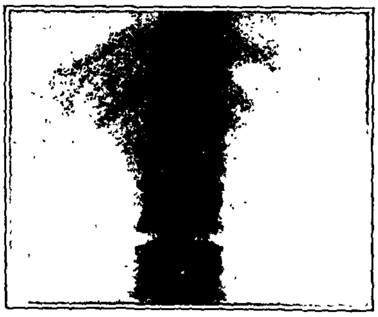


Fig. 3.—Control, Oct. 12, 1929, after removal of calculi from right kidney, showing calculi in left kidney.

Young [3] states that polycystic kidney may be the site of practically any other renal disease, as calculus, hydronephrosis, pyelonephritis or tuberculosis.

Surgery on polycystic kidneys has always carried a high rate of mortality. Brin [4] reported a mortality of 31.8 per cent in twenty-two cases of nephrotomy. Nephrectomy carries a still greater death rate.

A case of multiple bilateral calculi in polycystic kidney with successful operation was thought to be of sufficient interest to report.

REPORT OF CASE

History.—A man, aged 45, born in Nebraska, now operating a fox farm in Alaska, referred by Dr. Thomas B. Rhone of Petersburg, Alaska, was admitted to the Providence Hospital, Seattle, April 10, 1929. The patient's father died at the age of 56 of cardiorenal disease; his mother at 70 was living and well. He had two brothers living, both of whom had kidney disease, and three sisters, of whom he knew little. The patient had had the diseases of childhood. In 1900 he sustained a fracture of the left humerus and in 1913 a fractured jaw. One year before admittance, after thirty-six hours of a right renal colic, the patient passed a calculus. This was accompanied by hematuria. Three months later, another calculus escaped from the right kidney. A dull ache had been almost constant in the right upper part of the abdomen and back, occasionally radiating into the right groin. There had been no pain in the left side. Blood had been observed in the urine intermittently, sometimes a considerable quantity of it but no clots. The urine had been cloudy for several years. On standing, considerable sediment was thrown down. The urine had a strong ammoniacal odor. The patient had felt tired out and weak on exertion. He had lost weight and had little pleasure in eating. He had no gastric pains but suffered with gas after a heavy meal.

Examination.—The patient was 5 feet 9 inches (175 cm.) tall and weighed 161 pounds (73 Kg.). His temperature was 98.2 F.; pulse, 80; respiration, 18 at noon; blood pressure, systolic 160, diastolic 100. The blood Wassermann reaction was negative. Chemical examination of the blood revealed: urea nitrogen, 30 mg.; creatinine, 1.9 mg. The blood count revealed: hemoglobin, 62 per cent; erythrocytes, 3,560,000, and leukocytes, 19,050. A phenolsulphonphthalein test returned 27 per cent in the first hour and 20 per cent in the second.

The teeth were in poor condition with infected gums and many teeth were decayed. The abdomen relaxed easily. Both kidneys were easily palpable; the lower poles were below the crest of the ilium. Percussion over the right kidney produced pain.

The bladder was irritable, with a capacity of 120 cc. The urine was cloudy with a specific gravity 1.010, albumin plus, indican and sugar negative. Microscopically there were many pus cells and staphylococci; no tubercle bacilli were found. The ureters were easily catheterized, with obstruction noted near the right renal pelvis. The right kidney urine was milky in appearance and contained many staphylococci. The left kidney urine was almost clear and contained only a few staphylococci.

The control roentgenogram (fig. 1) showed a shadow in the upper right part of the abdomen which measured 3 inches long and 1½ inches wide (7.5 by 4 cm.). Above this was another shadow, ¾ inch in diameter. The left side showed a mass composed of several small, apparently faceted shadows, the whole mass being about 2 inches in length and ¾ inch in width.

The injected film (fig. 2) showed several large collections of opaque medium on the right side, one of which was superimposed on the previously described shadow, and the others surrounding it on all sides. The left side showed a greatly dilated and widely separated superior and inferior calix surrounding the previous collection of shadows mentioned.

The condition was diagnosed as polycystic kidneys with multiple bilateral calculi.

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* From the Urological Department, Providence Hospital.

[1] Thomas, B. A.: Urol. 20: 451 (Oct.) 1928.

[2] Greene: J. Urol. 20: 445 (Oct.) 1928

[3] Young, H. H., and Davis, D. M.: Practice of Urology, Philadelphia, W. B. Saunders Company 2: 25, 1926.

[4] Brin: Encyclopédie française d'urologie, 1914, 11,

First Operation.—April 20, under ethylene gas anesthesia, an oblique incision over the right ilium was made to give a good extraperitoneal exposure of the kidney. The latter was delivered and measured 30 by 13 by 12 cm. The surface was entirely covered with clear cysts from a pinhead in size up to 4 cm. in diameter. Several were punctured and contained pale, clear fluid. The pelvis was exposed posteriorly and the calculi were easily palpated. These were held between the fingers and cut down on. The stones were soft and had to be scooped out. The calices were easily explored with the finger. A drainage tube (24 French) was placed in the pelvis and a purse-string suture used. The wound was closed in layers.

The first night the right kidney drained 720 cc. of urine. The patient left the hospital on the twenty-first day with the wound healed, the blood pressure 130 systolic and 90 diastolic, and the weight 159 pounds (72 Kg.). The patient returned to Alaska and felt well for two months, when he began to have colic in the left side and back. These attacks were periodic and were apparently brought on by physical effort. Oct. 10, 1929, he returned to Seattle for the second operation.

Second Operation.—October 14, again with ethylene gas, the left kidney was exposed in the same manner as the right one had been six months before. The kidney was higher under the costal margin, necessitating the resection of the eleventh rib to deliver the organ. A similar picture of cysts was seen, blue, yellow and slate colored, all of different sizes (fig. 4). The ureter was isolated and the pelvis opened posteriorly. Through this incision were expressed several soft calculi and a quantity of putty-like substance. When the uppermost calculi were released, a quantity of white, creamy pus escaped. A rubber drain in the pelvis was secured with a purse-string suture. The kidney was replaced and the wound repaired.

Convalescence was placid. The patient was discharged on the twenty-fourth day; his weight was 148 pounds (67 Kg.). Feb. 1, 1930, he wrote that his weight was 165 pounds (74.8 Kg.), that the urine was at times hazy, and that he felt fine.

SUMMARY

1. Multiple calculi in bilateral polycystic kidney are exceedingly rare.

2. Surgery of the polycystic kidney should be unusually conservative.

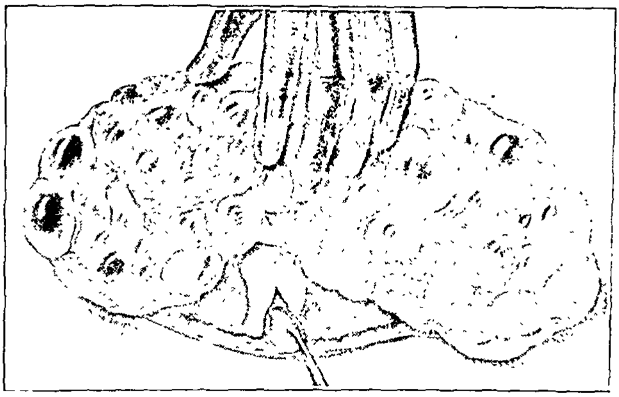

Fig. 4.—Appearance of cysts from left kidney; actual length, 11 inches (28 cm.).

3. Chronic staphylococcus infection of the urinary tract ends, frequently, in the formation of calculi.

340 Stimson Building—1215 Fourth Avenue.

The Control of Nature.—Human progress has been a series of triumphs over natural forces. But when anything new is proposed, certain people cry out that this is a perversion of nature. Of course it is. Man rules by bending the world to his will and to the service of his ends. Man has progressed by mastery over other forces.—Cowdry, E. V.: Human Biology and Racial Welfare, New York, Paul B. Hoeber, Inc., 1930.

A CASE OF OSTEOGENESIS IMPERFECTA INFANTILIS

JOHN INGLIS, A.M., M.D., DENVER

The mother of this child was 26 years of age. She was one of a family of eleven, all of whom were living except one child who died at 2 weeks of age of smallpox (the mother having contracted it) and one who died during the influenza epidemic of 1918. She weighed 152 pounds (69 Kg.) and was strong, healthy and well nourished. Her past history was entirely negative. The father was 24 and belonged to a family of four boys. He weighed 156 pounds (71 Kg.) and had always been well and strong. The Wassermann reaction was negative in both parents.

The pregnancy was normal in every way. The mother went into labor about 10 a. m., with pains every twenty or thirty minutes. These pains continued irregularly until 3 or 4 p. m., when they subsided to begin again at about 7:30. They then continued until the birth of the child by podalic extraction at 2:30 a. m. Breech presentation occurred, with the thighs more or less at right angles to the body.

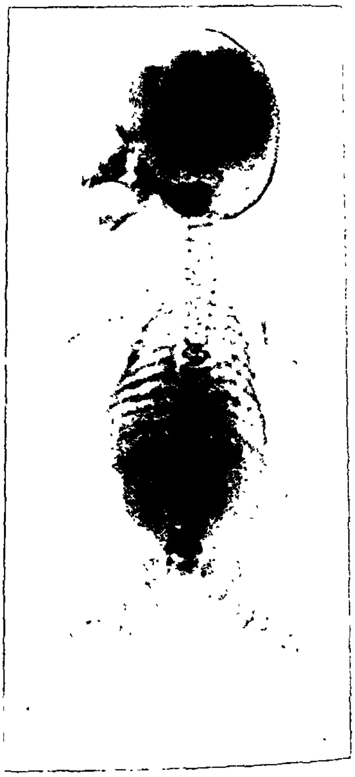

Fig. 1.—Osteogenesis imperfecta: 69 skeletal fractures, as follows: 32 costal; 20 costocartilaginous separations; 17 fractures of the extremities; comminuted eggshell fracture of skull; scapulae and pelvis poorly developed.

Great difficulty was experienced in the extraction of the child. When the legs were brought down, crepitus was felt over both the legs and the thighs. When the body was extracted, crepitus was felt over all the ribs. The greatest difficulty was found in getting the after-coming head. Dr. Evans, who was making some pressure above the pubis, remarked that he could not feel the head at all. After the head was finally extracted, it was found to be practically without a skull. This accounted for the difficulty in delivery, the usual methods only causing the head to enlarge parietally.

The child lived only a few minutes. A roentgenogram of the body showed seventy-four distinct fractures which had made an effort to unite again in the uterus.

REPORT FROM X-RAY LABORATORY

The roentgenologist reported that the condition was periosteal dysplasia. He found thirty-two rib fractures, twenty costovertebral arthrophymas, seventeen fractures of the extremities and many fractures (eggshell) of the skull. The bones of the skull, the scapulae and the pelvis were poorly developed. The spinal segments were normal.

CASES IN THE LITERATURE

This condition has been given a great variety of names. It was formerly thought to be intra-uterine rickets. This theory has been given up.

Chaumier of France reported a case in which there were 113 fractures. Most of these patients die at birth. Chaumier's patient lived thirteen days. It was delivered by a midwife.

Labor came on three weeks before term. It was a head presentation, and the baby weighed 3 pounds (1.4 Kg.).

De Paul reported a case in 1851. At that time he doubted the rickets theory.

Kassowitz of Germany reported one case. He leaned to the idea of intra-uterine rickets.

Rivière reported one case in 1911. This baby lived twelve days. Rivière thought it was syphilitic.

Getsava reported a case in 1913. As in all the others reported, the baby died.

AUTOPSY REPORT

The autopsy was performed on the body of a full term, white male infant measuring 41 cm. long and weighing 6 pounds and 12 ounces (3 Kg.).

A crescentic incision extended over the right clavicle.

There was a large amount of brown hair on the scalp. The head felt like a sac filled with fluid. Small bony plaques were in the area of the cranial bones.

There was a moderate amount of lanugo hair over the extremities. The pupils were equally dilated. The ears, nose and mouth appeared normal. There was a distinct feeling of crepitus on the midtrabecular line on both sides of the chest. The cord had dried.

There was a moderate amount of edema in the scrotum.

Crepitus was felt in both humeri, both forearms, over each femur and along the extent of the fibula. There was a slight amount of edema in the legs and feet.

The length of the right arm was 14 cm.; of the left arm, 14 cm.; of the right thigh, 4 cm. (measurement taken from the tip of the inguinal fold to the knee); of the left thigh, 4 cm. (measurement taken as for the right). The lower extremities measured 14 cm. from the tip of the toe to the upper portion of the inguinal canal.

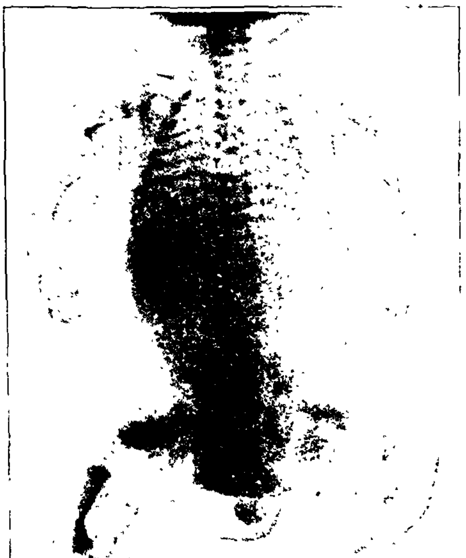

Fig. 2 Spinal segments normal.

In the abdominal cavity the position of the organs was normal. The small and large intestines were normal with little meconium present.

The pancreas weighed 2 Gm.

The liver weighed 97 Gm. It was normal in shape and size. The capsule was normal. The cut surface was also normal. The right and left suprarenal glands each weighed 3 Gm. and appeared normal. The kidneys each weighed 10 Gm. and appeared normal.

The gallbladder was normal.

The spleen was normal in shape, being as broad as it was long, with a deep notch on the anterior border. The capsule was normal. The cut surface was also normal. It weighed 8 Gm.

The thymus measured 6 by 4.5 by 1.5 cm. and weighed 12.5 Gm. The thyroid was not cystic and appeared normal.

The mesenteric glands were numerous and prominent. Otherwise the abdominal organs appeared normal. The omentum was normal.

The right and left pleural cavities and pericardial sac contained a large amount of fluid (probably embalming fluid and not hemorrhagic fluid).

The right lung weighed 16 Gm., and the left 14 Gm. Both appeared normal, as did the heart.

Along the spine was a diffuse traumatic hemorrhage with a separation between the fourth and fifth dorsal.

In the brain there was a diffuse traumatic hemorrhage around the occipital and temporal lobes above the tentorium cerebri and the cerebellum.

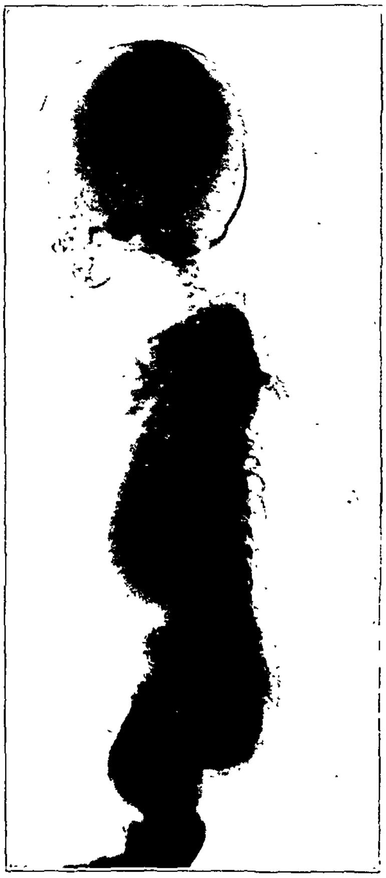

Fig. 3.—Faulty development of bones of pelvis; fractures of the extremities.

836 Republic Building.

A MOTORLESS OXYGEN THERAPY APPARATUS*

Russell L. Cecil, M.D., and Norman Plummer, M.D.

New York

The value of oxygen therapy in the treatment of disease has been demonstrated in the last decade by the accumulation of extensive clinical and experimental evidence. A continuous supply of from 40 to 60 per cent oxygen has been found to be most beneficial. Administration with the funnel or the nasal catheter does not supply this optimal concentration to the lungs. The mask has been given an extensive trial but has been found unsatisfactory for continuous therapy. The oxygen chambers, as developed by Haldane,[1] Barcroft,[2] Stadie,[3] Binger,[4] Barach,[5] and others, are satisfactory but they are expensive to operate and available only to a few hospital patients.

Leonard Hill[6] recognized the importance of constructing a portable oxygen therapy apparatus that would have the advantages of continuous flow and high concentration. In 1921 he described a bed tent that satisfied certain of these requirements but that was cumbersome to move and inefficient to operate.

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* From the Second Medical (Cornell) Division of Bellevue Hospital, and the Department of Medicine, Cornell University Medical College

[1] Haldane, J. S. Brit. M. J. 1: 181 (Feb. 10) 1917

[2] Barcroft, J. H.; Hunt, G. H., and Dufton, D. Quart. J. Med. 13: 179 (Jan.) 1920.

[3] Stadie, W. C.: J. Exper. Med. 35: 337 (March) 1922

[4] Binger, C. A. L. Med. Hosp. 24: [illegible] (Feb.) 1925

[5] Barach, A. L.: J. Clin. Investigation 2: [illegible] (Nov.) 192[illegible]

[6] Hill, Leonard Proc. Physiol. Soc. 1: [illegible]

This apparatus was modified considerably by Barach and Binger,[7] but the same disadvantages remained.

In 1926 Alvan Barach[8] described a new apparatus that was definitely more satisfactory. He incorporated the head tent idea of Roth,[9] which made it much less cumbersome. The ventilation was obtained by a small motor and fan; the air was cooled and dried by passage through cracked ice, and the carbon dioxide was eliminated by passage through soda lime. This portable therapy apparatus is the one most commonly used at the present time. However, it still presents certain mechanical difficulties, which are particularly those that have to do with the motor and the cooling system. The motor causes a certain amount of noise, is apt to stop suddenly, is dependent on an electrical connection and requires lubricating oil, which is considered dangerous when used near high pressure oxygen. The cooling system requires much attention in order to keep it filled with ice, and the leakage of water causes considerable inconvenience. In an attempt to overcome these disadvantages, the apparatus reported here has been developed.

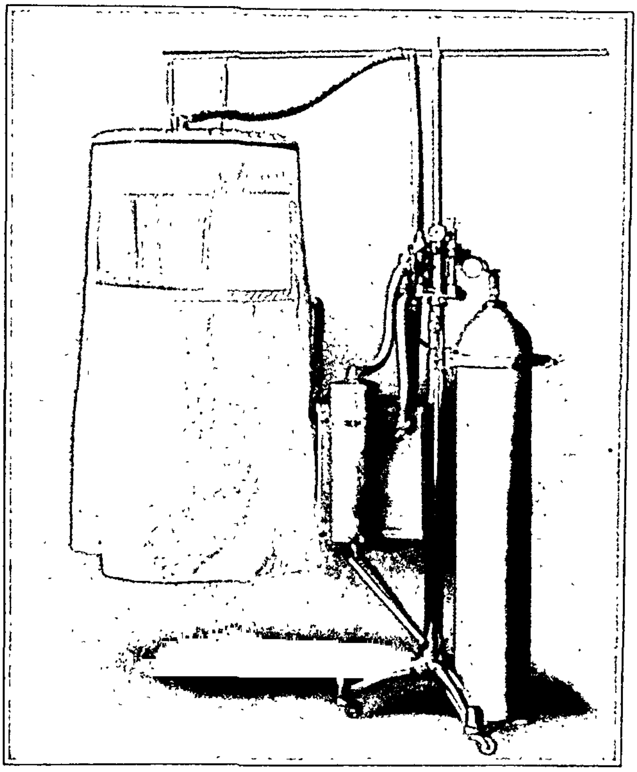

Fig. 1.—Motorless oxygen therapy apparatus, showing hood, operating mechanism and supports.

The motor blower is replaced by an injector, designed by the American Atmos Corporation. It utilizes the high pressure flow of oxygen for its motive power, drawing the air from the hood through the regenerator on the one side, and forcing it through the cooling system and back into the hood on the other. The injector may be regulated to furnish as much or as little circulation as is suitable. In this particular apparatus it is set to give an air exchange of 100 liters a minute.

The minimum oxygen requirement for this type of apparatus has been found to be approximately 5 liters a minute. For simplicity, the injector is set to use this minimum amount, which furnishes an atmosphere of about 50 per cent oxygen concentration to the patient. If a higher percentage of oxygen is required, it may be added through an auxiliary reducing valve. A gage connected to this valve registers the flow of oxygen in liters per minute. Another gage on the injector gives the pressure of oxygen in the cylinder. At the beginning of the treatment it is desirable to obtain the optimum oxygen concentration in the hood as quickly as possible. This is done by pressing a button on the front of the apparatus, which releases a quantity of oxygen and which will increase the oxygen percentage in the hood to 50 per cent in two minutes.

The carbon dioxide is removed from the air by passage through a regenerator of soda lime. This reduces the carbon dioxide in the air entering the hood to less than 0.5 per cent. The regenerator contains a sufficient amount of soda lime for more than twenty-four hours of treatment. Two types of regenerators have been used, one refillable and the other sealed. For the usual hospital practice, the refillable type is almost as handy and more economical. The sealed type is convenient when loose soda lime is not readily obtainable.

In the cooling system an attempt has been made to avoid the inconvenience of the use of ice and at the same time to produce, if possible, even greater cooling of the air. The system has been adapted to the use of "dry ice" (carbon dioxide snow), and all tests made up to the present time have proved very satisfactory. The air coming from the injector passes through the cooler, the inner walls of which form a container of the proper size to hold a 40 pound cube of "dry ice." The outer walls are double and lined with felt to afford insulation from the outside air. A water trap with a valve is placed at the lowest level of the circulatory system in order to remove the moisture that condenses from the expired air. A valve is also inserted at the bottom of the metal container to allow for the drainage of water when it is more convenient to use ice, or salt and ice. It has been found that a cake of "dry ice" will last from twenty-four to thirty-six hours. Ice and salt must be renewed every eight to ten hours.

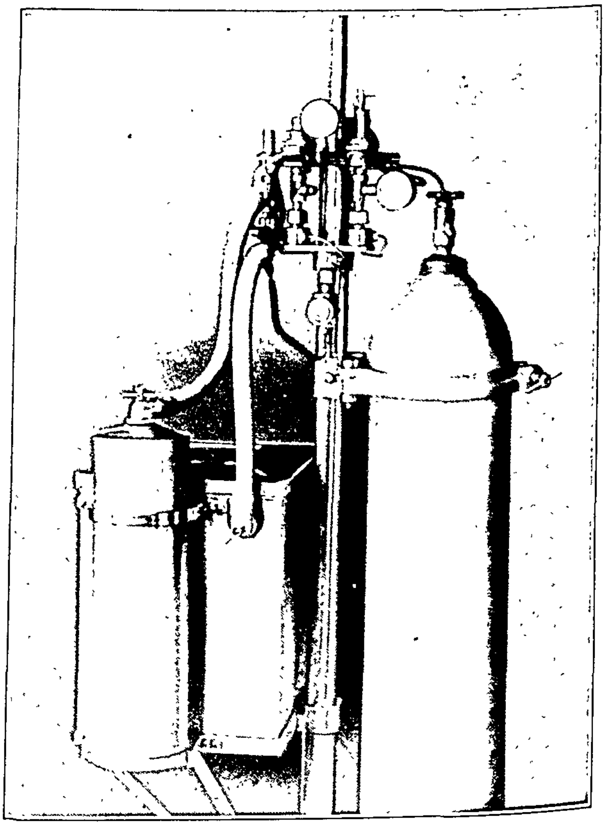

Fig. 2.—Operating mechanism of motorless oxygen therapy apparatus, showing regenerator, cooling system, injector, high pressure valve, by-pass valve, gages and oxygen tank.

The air from the cooling system passes directly into the side of the hood through a short piece of rubber tubing. This modification from the usual method of carrying the tubing to the top of the standard and thence into the top of the hood has been found to be a great improvement over the old arrangement. By this method the heating of the air by radiation from the metallic parts of the apparatus and from the room is largely prevented. With a room temperature of 73 F., the temperature of the air entering the hood was 22 F. when "dry ice" was used and 43 F. when ice and salt was the cooling substance. The air in the hood is warmer than the air entering the hood but cooler than the air of the room. At no time has a patient complained of the air being too cold.

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[7] Barach, A. L., and Binger, C. A. L.: Portable Oxygen Tent, J. A. M. A. **85:** 190 (July 18) 1925.

[8] Barach, A. L.: New Oxygen Tent, J. A. M. A. **87:** 1213 (Oct. 9) 1926.

[9] Roth, P.: Bull. Battle Creek Sanitar. & Hosp. Clin. **19:** 178, 1924.

The hood is of the circular type as described by Roth. It is 54 inches long and 26 inches in diameter, made of a heavy rubberized material, provided with a large window and supported from the top by a conical piece of metal. The standard and cross rod are adjustable, and the hood is hung from two small springs which make the apparatus flexible and easy to manipulate. The pedestal is of substantial construction with rubber-tired casters. The oxygen cylinder is easily mounted without being lifted. The entire outfit is easily moved from one place to another as a single unit.

The operation of the apparatus is extremely simple. With the oxygen cylinder in place, the regenerator attached and the "dry ice" or ice in the cooling chamber, it requires merely the turning of the valve on the oxygen cylinder to obtain approximately 50 per cent of oxygen in the hood. This percentage may be obtained rapidly by pressing the button on the front of the apparatus, or, with the outfit running, the oxygen may be increased by turning a valve. The oxygen cylinder is renewed every twelve hours, and the soda lime and "dry ice" every twenty-four hours, or, if ice and salt are used, it is supplied every eight hours.

The portable oxygen therapy apparatus that is described here has definite advantages which may be enumerated as follows:

1. Simplicity, and therefore very slight probability of the mechanism stopping suddenly or getting out of order.
2. Elimination of the use of a motor blower, thereby avoiding (1) the noise; (2) the hazards caused by sparks from the motor and by the use of oil near high pressure oxygen; (3) the attention which a motor requires, and (4) the necessity of locating the apparatus near an electrical connection.
3. A more efficient cooling system, with the use of "dry ice" instead of ice. This eliminates the necessity of frequent drainage of the cooling system and of renewing the cracked ice every two to three hours.
4. The apparatus is easily manipulated and is designed to give efficient oxygen treatment more comfortably and more economically to the sick patient.

A CASE OF ACONITINE POISONING CAUSING CARDIAC COLLAPSE

Edward F. Hartung, M.D., New York

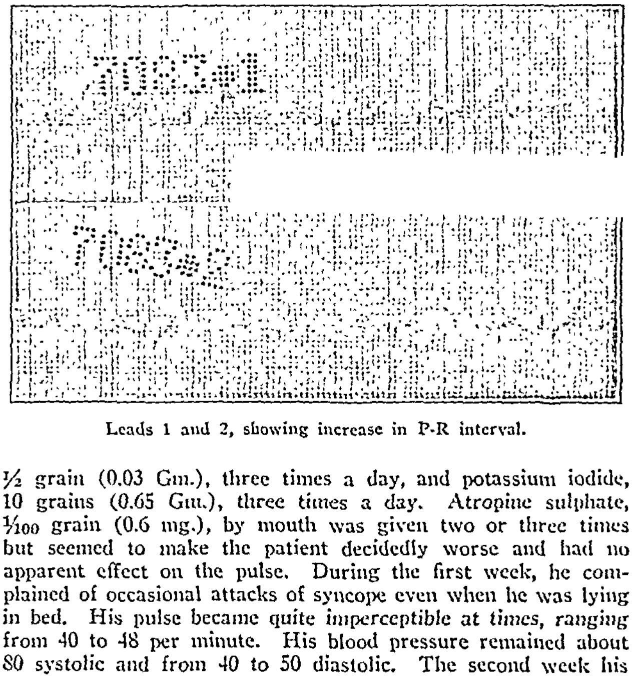
This case of aconitine poisoning is reported primarily to acquaint physicians with the possibility of its unsuspected occurrence. There are probably other cases of mild and severe aconitine poisoning throughout the United States which are being overlooked. Aconitine is a drug that finds little usefulness nowadays and naturally does not enter the physician's mind. Records of aconitine poisoning in any form are unusual in modern medical literature. In my perusal of the literature back to 1883, I could find only three case reports of aconitine poisoning in man with specific mention of its effect on the heart. There were no recent cases. Also, this is apparently the only case in man in which electrocardiographic records were obtained.

REPORT OF CASE

E. O., a merchant, aged 31, weighing about 242 pounds (110 Kg.), drank at about 4 p. m. a small amount of whisky which he had purchased a few weeks before on a steamer bound for New York. The estimated quantity taken was probably less than 3 drachms (11 cc.). The patient rarely used alcohol in any form. At first he felt exhilarated and took a long walk, but in a half hour he felt depressed and was unusually silent. He had a light dinner and then went to a theater. While in the theater about 9:30 he began to have difficulty in breathing and became quite faint, dizzy and weak. He said he felt that he was dying. He began to perspire profusely and his companion noticed that his skin was cold, white and clammy. He was given some spirit of ammonia but this failed to relieve him. Positive collapse lasted for two hours until he arrived home and was put to bed. He passed a rather uneventful night. He did not vomit or have diarrhea or any of the classic signs of aconitine poisoning, such as tingling in the mouth, stomach and skin. He did complain of moderate salivation. The outstanding factors were a great general depression and marked anxiety.

He was seen by me the following morning, and his chief complaint at that time was weakness and a feeling of faintness and uneasiness over the precordium. On examination he was outwardly normal except for the fact that he was pale and his skin was cold. His breathing was normal. The heart was enlarged slightly to the left. The sounds were almost imperceptible. There were no murmurs or other abnormal observations. The pulse was 40 per minute, weak, and almost imperceptible. The blood pressure was 75 systolic and 40 diastolic. This was difficult to obtain accurately. Electrocardiograms were taken at this time and the patient was put to bed.

Urine, serologic and chemical blood examinations were negative. The treatment was not specific at this time because I did not know that the cause of the symptoms was aconitine poisoning. He was kept strictly in bed and given general stimulating treatment, including small doses of digitalis, thyroid extract, ½ grain (0.03 Gm.), three times a day, and potassium iodide, 10 grains (0.65 Gm.), three times a day. Atropine sulphate, ¹⁄₁₀₀ grain (0.6 mg.), by mouth was given two or three times but seemed to make the patient decidedly worse and had no apparent effect on the pulse. During the first week, he complained of occasional attacks of syncope even when he was lying in bed. His pulse became quite imperceptible at times, ranging from 40 to 48 per minute. His blood pressure remained about 80 systolic and from 40 to 50 diastolic. The second week his pulse became more rapid, his blood pressure rose, and he had fewer attacks of syncope. By the end of the fourth week, his blood pressure had reached 125 systolic and 80 diastolic, his pulse ran between 60 and 80. Throughout the entire illness the patient exhibited great anxiety and panic, and complained of uneasiness over the precordial area.



Leads 1 and 2, showing increase in P-R interval.

On examination of his activities preceding the onset of his illness it occurred to me to examine the whisky that he had imbibed the afternoon of his first attack. Analysis showed this to contain an alkaloid which on further examination proved to be aconitine. How this got into the whisky is not for me to decide. The whisky was bought at a more or less public source and for this reason it is possible that other similar cases are going about unrecognized. Examination of the electrocardiograms taken about eighteen hours after the ingestion of the poison revealed sinus bradycardia. Subsequent electrocardiograms revealed an increase in the P-R interval to 28. The most marked ones are reproduced herewith.

All accurate toxicologic knowledge is derived from experiments on animals. Here is a case of bradycardia and first degree heart block due undoubtedly to aconitine poisoning. No electrocardiogram on this patient is available before partaking of the offending beverage, but he had been in perfect health and outside of a left preponderance due to obesity there is no reason for suspecting a preexisting cardiac condition. He has now returned to normal health.

121 East Sixtieth Street.

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SATURDAY, OCTOBER 25, 1930

THE COST OF MEDICAL CARE

The current situation so far as concerns solution of the problems of the cost of medical care is almost as *cloudy and befogged as that of five years ago.* The Committee on the Costs of Medical Care has supplied studies on which definite conclusions may be based. The numerous experiments in variations of the nature of medical practice existing in 1929 continue to exist, for the most part, although their conduct is constantly modified by new points of view, new details and the propaganda of the public press. The new experiments with clinics, hospitals, medical centers, institutes and what not are so recent that their effects are not yet measurable, nor is it possible to say whether or not similar organizations would function successfully in other communities.

The most recent publication of the Committee on the Costs of Medical Care concerns the contract medical service offered by the Endicott Johnson Company to its employees. That service is utilized by nine out of ten employees, wholly or in part. The investigation indicated apparently that a medical service so organized that there is no charge to the patient for each specific item permits wider use of medical facilities. This conclusion might be taken for granted. The study shows that in some respects contract service is the best type available but that in other respects it is below existing standards of practice. Actually, all that the Endicott Johnson Workers Medical Service demonstrates is the fact that it has been possible to establish such a service. The practitioners in the community not taking part in the contract service do as well financially as before, if not better.

In the current issue of the *Atlantic Monthly,* Mr. Evans Clark, an employee of the Twentieth Century Fund, founded by E. A. Filene of Boston, elucidates still further Mr. Filene's plan for medical guilds, which was brought out in The Journal some months ago. Mr. Clark argues for group practice, periodic examinations and health insurance. He wants specialized professional services at fixed annual fees, and he feels that it might be possible in this way with national organization to lower medical bills. Mr. Clark opposes the plan of charging more to the wealthy than is charged to the poor, notwithstanding the fact that he does not seem to have looked carefully into the basis for such charges. Actually, there is hardly a professional service available today, including that of ministers, lawyers, engineers, dentists and other professions, that does not charge on this basis. One cannot compare the importance of medical advice to a millionaire with the price of a box of strawberries. Apparently no one has raised the question as to why a lawyer will charge a millionaire more for making a will than he will a man with $100,000, when the man with $100,000 insists on distributing his money in such a fashion that the will requires twenty-five pages more than is required by the will of the millionaire who has decided to give all his money to his favorite friend. After all, the medical profession is becoming a little weary of suggestions for modification of its methods and customs by those who *have never taken the trouble to find out those methods* and customs, and the history of the reasons for their existence.

In the *Ladies' Home Journal,* Frederick L. Collins, professional writer, who has in the past discussed many subjects in many fields, now concerns himself with the high cost of being sick. His article is the kind of discussion that one might anticipate from a writer who had assembled a few references, looked at a few experiments, and attempted to draw conclusions covering the whole problem. Strangely enough, his illustrations are pictures of several of the wealthiest hospitals in New York City and do not concern the type of institution that has to administer to and care for the poor. His article is full, however, of sound but trite suggestions in this field.

Both Clark and Collins, as well as the editor of the *Ladies' Home Journal,* Loring A. Schuler, have come to the conclusion that lowering prices and state medicine are not the solution to the problem. Mr. Schuler concludes his editorial with the following significant statement:

> Much of the high cost of medical care is not due to the doctors, the system of treatment, excessive fees in nursing, hospitalization, or medical work. It is due to our own improper demands, to our expensive and usually ineffective attempts at self-medication.

In the meantime, attempts have been made to bring the most notorious experiment, the Public Health Institute of Chicago, under scientific auspices through the appointment of an investigating committee to analyze the qualities of its scientific work, and through the establishment of an advisory committee to consider ethical and social problems arising in the practice of the institution. Thus this experiment continues—tending apparently toward a form of practice that the medical profession can tolerate as safe, practical and scientific, and for the best interest of the science of medicine and the public.

The medical profession has lent itself willingly in the past and will, no doubt, lend itself willingly in the future to any experiment for solving medical economic problems that is established under good auspices, by leaders who are willing to play the game according to the rules. The rules are made primarily in the interest of the public. The individual who violates the rules in a zealous search for an answer to the problem may overstep the bounds and thereby suffer loss of his relationships to the organized medical profession. When he does so he is answerable for his own folly, since the organized medical profession has established means whereby any individual may assure himself that the system which he wishes to practice is for the public good and at the same time not a detriment to the practice of medicine. It is an aphorism that individuals pass from the scene but institutions of merit go on forever. The public must differentiate between the problem and the man. Occasionally a zealous officer of some component branch of organized medicine attempts, in his desire to uphold what he believes to be the rules of the profession, to employ extraordinary methods for the destruction of experiments. Appeals are made to public officials, the legal codes are scanned with a microscope, chambers of commerce are solicited for support and the signs of battle are kept constantly before the public. Individuals may voice personal opinions, not infrequently dictated by personal ambitions or political expediency or they may speak officially for medical organizations. The nature of the voice that speaks should always be made clear.

The great profession of medicine will go on, and the American Medical Association, established for the promotion of medical education, the advancement of medical science and the promotion of the public welfare, is not to be confused with any local issue until its official bodies have acted in relationship to such problems. The problem of providing the public with the best medical care at a price it can afford to pay has not been solved by the first three years of the five year experiment of the Committee on the Costs of Medical Care. It has not been solved by the establishment of sixty or more group clinics in the United States, by the notable success of one of these clinics or by the failure of many others. It has not been solved by the establishment of pay clinics in connection with hospitals, pay clinics established by universities, or commercial organizations organized by business men employing full-time physicians. It has not been solved by contract practice, by health insurance schemes, either compulsory or voluntary, or by the individual general practitioner. It is strange that physicians, who themselves distrust panaceas for diseases of the human body, should continually venture panaceas for the indispositions of the body politic. It is strange that public men who distrust one track systems in their commercial ventures should be willing to support similar systems for the solution of the problem of the cost of medical care.

THE ADVERTISING OF THE DENTIFRICE

The early part, of the twentieth century may be interesting historically for the fact that it witnessed the apotheosis of the tooth brush, the tooth paste and the mouth wash. It started with the slogan "A Clean Tooth Never Decays," subsequently proved to be as false as many other slogans through which high pressure advertising agencies attract the shekels of the paying public. When the competition for maximum sales in tooth brushes was at its height, special claims were made for peculiar curves of the handle, unequal pieces of the tufting, hardness and softness of the bristles and a half dozen other alleged refinements that are less matters of scientific value than choice or taste.

So far as mouth washes are concerned, their virtues may lie in a slight astringency or alkalinity, in the mildly antiseptic influence they exert for the extremely brief period in which they are in contact with the oral tissues, or more probably in the fact that they contain enough water to provide a lavage appealing to the organoleptic senses. When Feasley thumbed the dictionary and found halitosis, he gave to Listerine a sales impulse that no other mouth wash has ever been able to equal. The conception embalmed in the title of a current refrain: "If Your Best Friend Won't Tell You, Why Should I?" has a psychologic urge that has caused hundreds of thousands of hoi polloi to burn the trails to the drug counter. Nor did the fact that the combination of substances included in Listerine is relatively ineffective and will not cure halitosis lessen the stampede. Furthermore, the promoters of mouth washes, like the promoters of every other article of merchandise from grapefruit to toilet paper, have secured testimonials from all sorts of people to the effect that they themselves have been benefited by actual trial of the substance concerned.

Recently, the Food and Drug Administration of the United States Department of Agriculture has cast a critical eye over the claims for antiseptic value made for various mouth washes and gargles. It is currently reported that the owners of all these bringers of gold are rushing hither and thither to the laboratories searching for substances that really are antiseptics and that can be added to their concoctions without changing taste or color—the important qualities—that the claims may be justified.

And now for the dentifrices! Through the potent spell of the comedy of Amos and Andy, a pepsinized mixture leaped to a leading position among tooth pastes, notwithstanding the lack of value of pepsin for this purpose. Claims made for alleged alkaline or acid values in tooth pastes have been strong—by contrast, as strong as the evidence to the effect that control of acid or alkali will prevent dental caries has been feeble. The changes have been rung long and insistently on alkalinity, on "the danger line" and on the percentage of those with pyorrhea. A half dozen assorted chemists and the commissioner of health of New York assert that low surface tension means that a tooth paste will penetrate better between the teeth. The claim of special value because of low surface tension in connection with the selling of any tooth paste is one hundred per cent hokum. Any mixture of soap, glycerin and chalk, such as is available in many tooth pastes, would be equally endowed with a low surface tension.

The council on dental therapeutics of the American Dental Association has, it is reported, secured the promise of abandonment of the claims for low surface tension by the Colgate Company, and is actively endeavoring to bring other manufacturers of tooth pastes and dentifrices into the fold where claims made for products are substantiated by scientific evidence. Physicians should do all that they can to aid the American Dental Association in this campaign.

BRAIN FUNCTIONS

The problem of the localization of cerebral functions cannot be said as yet to have reached a definite solution. From the early days of scientific interest in the subject a century or more ago until the present time the pendulum of belief has swung from one extreme to another. Flourens convinced many of his contemporaries that the cerebrum is a single organ, functionally equivalent in all its parts. The subsequent work of experimentalists, notably Hitzig and Frisch and their followers, brought out "the overwhelming importance of the cortex." Before that period the corpus striatum was regarded as the great motor center, and the thalamus as the chief center of sensation. With the establishment of the highest cerebral centers in the brain cortex came extreme views of the localization of function in the brain in which the different motor and sensory areas were definitely circumscribed and separated from one another, making the cerebrum "a plurality of organs."

The more recent studies, as Howell [1] has pointed out, have tended to modify these extreme views of localization and to emphasize the fact that histologically and physiologically the entire cerebrum is connected so intimately, part to part, that, although the different regions mediate different functions, nevertheless an injury or defect in one part may influence to some extent the functional value of all other regions in the organ. The general idea of a localization of function has been accepted, he adds, but the modern view is that the cerebrum is composed of a plurality of organs, not completely separated one from the other, as taught by Gall, but intimately associated and to a certain extent dependent one on another for their full functional importance.

It is not always easy to translate the results secured from animals in this field directly to human conditions. Accidents involving the brain and surgical necessities have therefore been depended on to supplement and substantiate the conclusions that have been developed regarding the functions of the human brain. Dandy [2] of the Johns Hopkins Hospital, from a series of cerebral operations of varying character, has reached the following conclusions:

> It is possible to remove all of the right cerebral hemisphere above the basal ganglia with no appreciable disturbance of mentality; this procedure has been carried out on several occasions for the removal of extensive tumors in the right hemisphere.
>
> On one occasion both frontal lobes have been completely extirpated for the treatment of a bilateral frontal brain tumor, and following this there has been no appreciable disturbance of mentality. The patient is perfectly oriented as to time, place and person; the memory is unimpaired; he reads, writes and conducts mathematical tests accurately; his conversation is seemingly perfectly normal.
>
> Furthermore, by the excision in other cases of the left occipital lobe and of the lower third of the left temporal lobe, we can be sure that none of these regions are responsible for intelligence. The intellect, therefore, is concerned with the remaining portion of the left cerebral hemisphere and is doubtless closely related to the speech mechanism.
>
> It has been found after ligation of the anterior cerebral artery on the left side that consciousness is completely and forever lost. This does not result when the same vessel is ligated on the right side. There is, therefore, within the limits of the distribution of this vessel an area specifically concerned with consciousness. The same result follows when this vessel is occluded at the middle of the corpus callosum, indicating that the seat of consciousness is posterior to this point in the vessel.
>
> The entire body of the corpus callosum may be split in the midline without any appreciable disturbance of function. This structure is, therefore, eliminated from participation in the important functions which hitherto have been ascribed to it.

When data of this sort become more abundant in the course of time, new synthetic conceptions and a better insight into the complicated nature of human cerebration will be realized.

Current Comment

ADVERTISING AND THE DOCTOR

The giving of a testimonial for a tooth paste by the commissioner of health of New York has been made the basis of an issue as to whether or not individual physicians and the medical profession should advertise. In a day when advertising and propaganda are the great gods of the American press, medical organizations have had to do their utmost to sustain the ethical principles that have guided the profession for many years. Those principles are not obsolete. They are as necessary for the maintenance of scientific medicine, for the good of the patient, and for the public health as is the golden rule. Organized medicine has championed willingly the abolishment of mystery from medical practice. It has given freely of its services for education of the public in hygiene and for information as to the progress that medicine has made in the control of preventable disease. A few county and state medical societies have used advertising space in promoting campaigns for the public health, in attacking quackery, and in education of the public. But as yet there is little, if any, proof that such campaigns have had results warranting the money spent on them. The secretary of one of the largest component societies of the American Medical Association has urged the employment of a public relations council for each medical group, and the employment of advertising space in the press for the promotion of medical interests, but he has been guided, no doubt, by the mere fact that great commercial organizations have promoted their interests in this manner. In a few instances physicians holding memberships in medical organizations have permitted the use of their names in the promotion of products in the health field, and in but few instances have the medical societies of which they were members called them to account. The testimonial given by the health commissioner of New York apparently aroused a storm of protest—not so much because it was a testimonial as for the fact that it represented a personal opinion not supported by adequate scientific evidence, and vaunting unduly the picture and personal qualities of the testimonial giver. The question in this case appears to be not so much one of medical ethics as of scientific judgment and good taste.

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[1] Howell, W. H.: A Text-Book of Physiology, ed. 10, Philadelphia, W. B. Saunders Company, 1927.

[2] Dandy, W. E.: Changes in Our Conceptions of Localization of Certain Functions in the Brain, Am. J. Physiol. 93: 643 (June) 1930.

THE SEMICENTENNIAL OF A GREAT DISCOVERY

The week of November 2 will mark the fiftieth anniversary of the discovery, Nov. 6, 1880, of the parasites of malarial fever by Alphonse Laveran while an army surgeon in Algiers. Not long after, Sir Ronald Ross, then of the Indian Medical Service, proved experimentally that the malaria parasite is dependent on certain species of mosquitoes for its transmission from man to man. In 1897 he discovered the Laveran plasmodia in the stomach wall of *Anopheles* that had fed on the blood of malarial patients, subsequently proving that the spores of the parasites are concentrated in the salivary glands of the insect. In 1911 the American physicians Bass and Johns of New Orleans succeeded in developing pure cultures of the parasites of malaria outside the human body. These are some of the "high spots," passed in rapid review, of a series of scientific achievements in modern medicine that have been responsible for the prevention of much human suffering and the accomplishment of undertakings that were formerly regarded as well nigh impossible. Within the half century just passed, and during the lives of many still living, the old conceptions that malaria is caused by bad air, unwholesome odors, damp night winds, or impure drinking water have been dispelled forever, even from the minds of the untutored layman. Malaria has been eradicated from parts of the world. Without knowledge of its causative parasite and insect vectors, the Panama Canal could scarcely have been completed. A distinguished writer has remarked that the whole subject of malaria has become so fully clarified that a control of the scourge has become a matter for organization and administration alone. The golden jubilee of Laveran's pioneer contribution to the etiology of malaria coincides with the three hundredth anniversary of the earliest application of cinchona bark, with its quinine content, to the therapeutic management of the disease. As Bass[1] recently pointed out in The Journal, the cinchona alkaloids still constitute the only specific remedy for malaria. The methods for its prevention depend on the recognition of its cause, discovered by Laveran.

POLIOMYELITICIDAL ACTION OF NORMAL HUMAN SERUM

The serums of persons who have recovered from poliomyelitis usually, though not invariably, have the power of killing, neutralizing or inactivating poliomyelitis virus in vitro. It is generally assumed, though without actual experimental proof, that this neutralizing power is a measure of the probable therapeutic value of such serums. Relatively few control tests have been made with normal human serums, the general assumption being that, while such serums may occasionally neutralize poliomyelitis virus in vitro, they are usually inert or of such low viricidal power as to be of little or no therapeutic interest. A quite different perspective is suggested, however, by the report of Drs. Shaughnessy, Harmon and Gordon[2] of the Department of Hygiene of the University of Chicago. These investigators worked with Berkefeld filtrates of 5 per cent emulsions of spinal cords of infected monkeys. The filtrates were mixed with equal volumes of various dilutions of normal and convalescent human serum; the mixtures were incubated two hours and then stored in the ice chest over night. The next morning 2 cc. of each mixture was injected intracerebrally into a monkey, control injections being made with incubated mixtures of the same virus plus immune and nonimmune monkey serum. Of the twelve convalescent human serums thus far tested, eight neutralized their stock filtrate in a dilution of 1:2 and five in a dilution of 1:30. That is, only 40 per cent of their human convalescent serums were effective in vitro at this higher dilution, a dilution that corresponds to the maximum feasible therapeutic dose in human medicine. Nineteen serums from family contacts and normal children over 2 years of age were tested, seventeen of them neutralizing their virus in a dilution of 1:2 and fifteen, or nearly 80 per cent, in a dilution of 1:30. The investigators conclude from these data that serums of family contacts and of normal adults and older children possess greater power to neutralize poliomyelitis virus than the serums of persons who have recovered from an attack of the disease. They suggest that it would seem worth while in the light of these results for the clinician to study the value of selected normal serums, shown by laboratory test to neutralize virus, in the therapeusis of poliomyelitis. In this connection it may be recalled that more than a decade ago occasional favorable results with untested normal human serums were reported by Zingher.[3] Of even greater theoretical interest are the few tests made with serums of normal children under 2 years of age. Of the five infantile serums thus far tested by the Chicago investigators, none neutralized poliomyelitis virus in a dilution as high as 1:10. Contrast this with the nearly 90 per cent neutralization at 1:10 dilution with the serums of normal children over 2 years of age. This observation seems to indicate that, in poliomyelitis, immunization of the normal infantile population proceeds in much the same way as is the case in diphtheria.

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[1] Bass, C. C.: The Treatment of Malaria, with Some Reference to Recently Promoted New Remedies, J. A. M. A. 95:988 (Oct. 4) 1930.

[2] Shaughnessy, H. J.; Harmon, P. H., and Gordon, F. B.: Neutralization of the Virus of Poliomyelitis by Human Sera, Proc. Soc. Exper. Biol. & Med. 27:742 (May) 1930.

[3] Zingher, Abraham: The Diagnosis and Serum Treatment of Anterior Poliomyelitis, J. A. M. A. 68:817 (March 17) 1917.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:15 on Tuesday, and 10 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

October 27. Not So Long Ago And Now.
October 28. What About Goiter?
November 1. Protecting the Mind of Childhood.

Five Minute Health Talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

October 27. Whither Goest Thou?
October 28. What Troubles Your Mind?
October 29. The Increasing Automobile Toll.
October 30. Worry Warps the World.
October 31. Be Sensible.
November 1. Sensible First Aid.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Personal.—Dr. Grafton Elliot Smith, professor of anatomy, University of London, England, will lecture at the University of California, November 18-19, on "Peking Men and Evolution of the Human Brain." Dr. Smith has held the position of professor of anatomy at the Universities of London and Manchester, and the Egyptian Government School of Medicine, Cairo, Egypt.

State Fair Exhibit.—The exhibit of the state department of public health in the educational building at the state fair held in Sacramento consisted of charts and models, illustrating the trend of births and deaths in the state. It was estimated that between 150,000 and 200,000 people visited the exhibit. Literature on public health subjects were distributed to all who expressed interest in the subject.

Society News.—The eighty-third semiannual meeting of the Southern California Medical Association will be held in the Hotel Virginia, Long Beach, October 31-November 1. The program includes "Deafness—A Vital Social, Economic and Medical Problem," Dr. F. L. Rogers, Long Beach; "The Dietary Factor in Kidney Disease," Dr. Noel F. Shambaugh, Long Beach; "Senility—Cause and Prevention," Dr. Paul B. Roen, Los Angeles; "Indications for Use of Special Tests by the Practitioner," Dr. Arthur L. Bloomfield, San Francisco; "Diagnosis and Treatment of Carcinoma of the Colon," Dr. James Tate Mason, Seattle; "Safety Margin in Nitrous Oxide-Oxygen Anesthesia," Dr. Harry K. Bonn, Los Angeles; "Nonoperative Treatment of Steer-Horn and Fish-Hook Type of Stomach," Dr. Harlan Shoemaker, Los Angeles; "Pyloric Stenosis," Drs. Burns S. Chaffee and Cleon C. Mason, Long Beach; "Chronic Meningococcic Septicemia," Dr. Fred B. Clarke, Long Beach; "Recent Developments in Our Knowledge of the Adrenals and Their Clinical Application," Dr. Burrell O. Raulston, Los Angeles; "Present Status of the Surgical Treatment of Benign Lesions of the Stomach and Duodenum," Dr. Verne C. Hunt, Los Angeles. Dr. Clay Ray Murray, New York, will present a talking motion picture entitled "Pott's Fracture," and Dr. Alfred C. Reed, San Francisco, an illustrated travelogue through Asia, "Tropical Diseases."——The San Francisco Pathologic Society was addressed, October 6, by Drs. Harold Brunn on "Echinococcus Cyst of the Liver"; Fred Firestone, "Hepatic Degeneration with Obstructive Type of Jaundice"; Stacy R. Mettier, "Hepatic Cirrhosis in a Young Woman"; Gordon E. Hein, "Macrophage Showers"; Alson R. Kilgore, "Unusual Goiters," and Edwin L. Bruck, "Epithelioma of the Stomach."——The Los Angeles County Medical Association was addressed, October 16, by Drs. Donald J. Frick on "The Heart in Diseases of the Thyroid Gland"; Oscar Reiss, "Report of 180 Cases of Poliomyelitis with Review of Present Epidemic," and Edward C. Moore and Donald G. Tollefson, "Hysterectomy."——The Los Angeles Trudeau Society will be addressed, October 28, by Drs. Edward W. Hayes, Monrovia, and John Dwight Davis on "The Practical Application of the Recent Classification of Tuberculosis in Children" and "Pathologic Changes of Lymph Nodes in Experimental Tuberculosis," respectively.

ILLINOIS

Society News.—The Taylorville Physicians' Club was addressed, September 24, by Dr. Perry E. Duncan, Chicago, on "Eye Injuries."——The Madison County Medical Society was addressed at Granite City, October 3, by Drs. Leslie D. Darner on gas poisoning, and Quitman U. Newell, St. Louis, cancer of the uterus.——At the annual meeting of the Tri-County Medical Society (Warren, Knox, Henry), October 13, at Galesburg, the speakers were Drs. Alexander A. Goldsmith, "Chronic Colitis"; Rollo K. Packard, "Surgical Mortality and Morbidity"; Edward L. Cornell gave an illustrated talk on obstetrics.

Chicago

Personal.—Dr. Le Roy Thompson was appointed chief of staff of the Illinois Charitable Eye and Ear Infirmary by Governor Emmerson, August 1, succeeding Dr. William L. Noble, and Dr. James L. Smith was appointed superintendent of the institution to succeed Dr. Leo Steiner.——Dr. Archibald V. Hill, Foulerton research professor of the Royal Society, London, England, lectured on "The State of Water in Tissues" at Northwestern University Medical School, October 20.

Society News.—The second William T. Belfield Lecture was given before a joint meeting of the Chicago Medical and Urological societies, October 22, by Dr. Edward L. Keyes, New York, on "Preventable Infections Incident to Preparing a Prostatic for Operation."——Dr. Joseph A. Capps delivered the presidential address before the Chicago Pathological Society, October 13, on "Pathogenesis of Cardiac Pain"; Dr. Harry Gideon Wells spoke on "Addison's Disease with Selective Destruction of the Suprarenal Cortex"; Dr. Phillip F. Shapiro, "Pathogenesis of Glomerulo- and Arterio-Necrosis in Malignant Nephrosclerosis," and William M. McGrath and Dr. Carl W. Apfelbach, "Spontaneous Bilateral Decapsulation of the Kidneys."——Dr. Ida C. Mann, London, England, addressed the Chicago Ophthalmological Society, October 13, on "Embryology of the Eye."——The Medical History Club of the College of Medicine of the University of Illinois opened its fourth season of public lectures, October 15. Dr. William F. Petersen spoke on "Count Struensee"; these lectures are held in the library of the college of medicine on the first and third Wednesdays of each month at 1 p. m.

INDIANA

Society News.—Dr. Bransford Lewis, St. Louis, addressed the Terre Haute Academy of Medicine, September 5, on "Movable Kidney."——The Floyd County Medical Society was addressed, October 10, at New Albany, by Dr. William F. Edwards on "Focal Infection."——Dr. Austin A. Hayden, Chicago, addressed the Indianapolis League for the Hard of Hearing, September 30, on "How the Handicap of Deafness May Be Overcome."

IOWA

Board of Health for University.—The board of health for the University of Iowa, authorized by President Walter Jessup, was recently organized and its divisional work inaugurated with headquarters at the student outpatient service offices. The personnel includes Dr. Henry S. Houghton, professor and dean of the college of medicine, chairman; Dr. Fred M. Smith, professor and head of the department of theory and practice of medicine; Dr. Milford E. Barnes, professor and head of the department of hygiene and preventive medicine, secretary, and Carl E. Seashore, Ph.D., head of the department of psychology and the graduate college; Robert E. Rienow, dean of men; Miss Elizabeth Halsey, professor and head of the department of physical education for women, and Edward H. Lauer, Ph.D., professor and director of the division of physical education. With the approval of Dr. Daniel C. Steelsmith, state commissioner of health, the university board will enforce regulations of local health officers and remove possibilities of menace to health arising from the existence of the hitherto "no man's land" in the form of state owned properties. The activities of the new board will include the inspection division, under the direction of Jack J. Hinman, Jr., assistant professor of sanitation and chief of the water laboratory, which will carry out the sanitary inspection of all buildings under the direction of the quasi control of the university and all water, milk and food supplies and swimming pools. The communicable disease section, under Dr. Carl F. Jordan, assistant professor of hygiene and preventive medicine, will investigate and act on all reportable and communicable diseases within the university health district; those cases involving extramural action will have close cooperation with the local health authorities. The life extension division, under Dr. Chester I. Miller, chief of the student outpatient department, and Drs. L. B. Hanson and Grace E. Williams, examiners for men and women, respectively, will handle students, nurses and employees. The health examinations now required of all freshmen will be extended to include all incoming registrants and all prospective graduates during their final year. The student outpatient department will be supervised by Dr. Miller and will care for student illnesses, and those in need of additional service are referred to the hospital, for which a nominal charge is made.

KENTUCKY

Section Holds Annual Dinner.—The tenth annual session of the eye, ear, nose and throat section of the Kentucky State Medical Association was recently held in Louisville. Dr. Gaylord C. Hall, Louisville, presented his annual address on "Acute Retropharyngeal Abscess in Infants and Young Children." The guest of honor, Dr. John F. Barnhill, Indianapolis, spoke on "Headaches." The program included papers, among others, by Drs. Joseph A. Stucky, Lexington, on "Upper Respiratory Tract as a Guide to Nutritional Disaster—A Discussion of the Jarvis Syndrome"; Claude T. Wolfe, Louisville, "History and Diagnosis of Trachoma"; David L. Salmon, Madisonville, "Deformities of the Nasal Septum and Their Correction"; Harry D. Abell, Paducah, "A Questionnaire on Some of the Problems Concerning Tonsillectomy"; Will R. Pryor, Louisville, "Tuberculosis of the Larynx—Treatment with Actual Cautery"; Roy Glen Spurling, Louisville, "Diagnosis and Treatment of Brain Abscess," and Greenbury B. Brown, Jr., Lexington, "Causes of Bleeding from the Throat." Dr. William P. Drake, Bowling Green, was elected president.

MARYLAND

Another Cancer Clinic.—A cancer clinic was opened at the University of Maryland Hospital, Baltimore, October 6. It is located in the dispensary of the hospital at Lombard and Greene streets. The service will be free to all except those able to pay for diagnosis and treatment.

Dr. Doull Resigns.—Dr. James A. Doull recently resigned his position as coordinator of the study of common cold, which is being conducted at Johns Hopkins University School of Hygiene and Public Health, to become professor of hygiene and public health at Western Reserve University Medical School. Dr. Doull had been granted a leave of absence as professor of epidemiology at Johns Hopkins to carry on this work. The Chemical Foundation, a few years ago, gave $195,000 to the school of hygiene and public health for an exhaustive study of the origin, nature and possible cure of the common cold (The Journal, Jan. 21, 1928, p. 212; Aug. 4, 1928, p. 326). Dr. Vivian A. Van Volkenburgh, who has been a member of the staff of the school of hygiene and public health for several years, has been chosen to succeed Dr. Doull.

Society News.—The Baltimore City Medical Society held a symposium on duodenal ulcer, October 3. The society was addressed, October 17, among others, by Drs. Max Kahn on "The Question of Preoperative and Postoperative X-Ray Treatment of Cancer of the Breast," and Edward A. Looper, "Foreign Bodies in the Esophagus and Bronchi."——The semiannual meeting of the Medical and Chirurgical Faculty of Maryland was held in Westminster, October 22, at the Western Maryland College. Addresses were given by Drs. Frederick W. Wright on "The Entente—The Relationship of the General Practitioner and the Small Town Country Hospital to the Large Medical Center"; Charles C. Habliston and Thomas B. Aycock, "Phrenicotomy in the Treatment of Pulmonary Disease,"; Albert Austin Pearre, "Symptomatology of Hypothyroidism in the Adult," and William Francis Rienhoff, Jr., "Gastroduodenostomy."

MISSISSIPPI

Dr. Crider Goes to Jefferson Medical College.—Dr. Joseph O. Crider, dean and professor of physiology and histology at the University of Mississippi School of Medicine, University, resigned to become associate professor of physiology and assistant dean in the Jefferson Medical College, Philadelphia, where he assumed his new duties, September 22. Dr. Crider has been succeeded at the University of Mississippi by Dr. Philip L. Mull, professor of anatomy at the school.

NEBRASKA

Society News.—The Madison Five Counties Medical Society was addressed, August 26, by Drs. John J. Keegan on "Neuritis and Neuralgia," and Howard B. Hamilton, Omaha, "The Acute Abdomen in Young Children."——"Nephrosis" was the subject of Dr. Clark L. Phillips, Dixon, before the Cedar, Dakota, Dixon, Thurston and Wayne Counties Medical Society at Randolph, August 21. Dr. Paul F. Siman, Wayne, spoke on "Use of Foreign Protein in the Treatment of Peptic Ulcer"; Dr. Glen E. Peters, Randolph, "Undulant Fever" and Dr. Jacob N. Lande, Sioux City, "Some Diseases of the Skeleton in Infants and Children."——The Otoe County Medical Society was addressed at Nebraska City, September 8, by Drs. John Clyde Moore, Omaha, on "Serum Immunization in Children," and Abraham E. Bennett, Omaha, "Early Diagnosis and Treatment of Anterior Poliomyelitis"; Dr. Willis H. Taylor, Omaha, gave a screen lecture on some obstetric problems.——The Ninth Councilor District Medical Society was addressed at Grand Island, September 9, by Drs. Robert D. Schrock, Omaha, on "Fractures at the Elbow"; Eugene C. Foote, Hastings, "Eye Conditions in India"; Eli A. Watson, Grand Island, "Surgery of the Upper Abdomen," and Ernest Kelley, Omaha, "The Mechanism of Hysteria."

NEW JERSEY

Society News.—The Bergen County Medical Society was addressed, September 9, by Drs. Henry F. Helmholz, Rochester, Minn., on "Ketogenic Diet Treatment in Epilepsy"; John L. Morse, Boston. "Diagnosis and Prognosis in Pediatrics," and Russell Burton-Opitz, "Clinical Significance of High and Low Blood Pressure."——"Accessory Sinus Disease and Its Relation to Hay-Fever and Asthma" was the subject of Dr. Philip S. Stout, Philadelphia, before the September 10 meeting of the Burlington County Medical Society, and "Methods of Diagnosis of the More Common Diseases of the Ear," by Dr. Edward B. Gleason, Philadelphia.

Examination of Food Handlers.—The semiannual examination of all food handlers required by state board of health regulations, conducted by the Newark Department of Health, has been extended locally to include all domestic employees. Restaurant and kitchen employees must go to the department of health's clinic with the exception made for a few large department stores and insurance companies where complete clinical facilities are available. Ninety per cent of all other food handlers, including grocers, milk dealers, confectioners, bakers, butchers, soda dispensers and domestic employees, are examined at the clinics of the health department, but they have the option of examination by private physicians, who must use special blank forms. Examination for venereal diseases is made of all males. Routine swabs or cultures are not taken except when indications call for other specimens or a Wassermann test.

NEW YORK

Conference on Public Relations.—Thirty-one counties were represented at the first conference of the chairmen of public relations committees of county societies, held at Albany, September 18. Dr. James E. Sadlier, Poughkeepsie, chairman, outlined the work of the committee to consist of informing local physicians about services being conducted in the county, to establish a foundation for future health services by expanding work already undertaken, and to start new projects. The committee aims to establish cooperation between local physicians and volunteer health organizations and to promote a health survey of each county. The survey of Oswego is the fifteenth made under the auspices of this committee. Among its noteworthy results, especially in the cities of Fulton and Oswego, are the maintenance of a city welfare nurse to offer free services to families needing instruction in hygiene and care of the home and the child; the holding of prenatal clinics once a week, and the maintenance of a tuberculosis nurse for the investigation of potential cases and free hospital provision for needy cases. The society cooperates with lay organizations in supplying free milk to poor undernourished children and in the campaign against diphtheria and smallpox. The child hygiene station and prenatal clinic training station for state welfare nurses was established and two specialists a month conducted clinics for children with mental deficiencies and for crippled children. Recommendations were made that efforts be directed to have all milk pasteurized and improvements made in the water supply and sewage disposal, and the establishment by the county of a dental clinic meeting alternately in Fulton and Oswego. The committee asked that physicians in localities where clinics are to be held should offer their services for a small consideration to be paid by the county in order to establish a permanent service to persons who cannot afford regular treatment.

New York City

Appropriations for Hospitals.—The board of estimate recently appropriated $600,000 for the immediate construction of buildings to house 800 additional tuberculosis patients, 503 of whom now await admission to city hospitals. The city hospital commissioner, Dr. J. G. William Greeff, in July had asked for $300,000 to build four fireproof pavilions at the farm colony on Staten Island for tuberculous patients, but when it was found that there was a great increase in the number of patients, provision for 800 additional beds were made without delay. The board also voted $300,000 for the reconstruction of the Brooklyn Cancer Institute. The commissioner stated that every institution for the treatment of tuberculosis is overcrowded with 10 per cent more patients than beds in the institutions. He reported that the number of city patients suffering from various diseases at its lowest ebb this year exceeded the highest number cared for last year. In the first six months of this year, 167,000 more visits were made to outpatient departments than in the whole of 1929. The daily census of the twenty-six institutions in the hospital department showed 1,500 more patients than were cared for last year.

Increase in Welfare Work.—The expenditures of relief funds by all social agencies of the city from 1910 to 1926 for health work increased from $136,000 to $466,000, and to help handicapped persons, from $10,000 to $278,000. The Welfare Council reports that the funds available to the thirty-eight principal organizations engaged in assisting persons in their own homes increased from $2,000,000 in 1910 to about $9,000,000 in 1926. The income of New York's privately supported relief agencies increased 300 per cent in seventeen years, and the income from municipal relief funds increased 2,500 per cent. Five per cent of the income comes from bequests and 76 per cent represents contributions from living persons and organizations. The trend of relief work is to enable individuals and families to solve problems that make them social work cases. Agencies have set up "sheltered workshops" where cripples, convalescents and other physically and mentally handicapped persons are enabled to support themselves fully or partially by work.

Society News.—Among the exhibits illustrative of phases of "Medical and Surgical Aspects of Acute Bacterial Infections" given at the third annual graduate fortnight at the New York Academy of Medicine, October 20-31, are those on undulant fever, Rocky Mountain spotted fever and tularemia through the courtesy of the National Institute of Public Health; dysentery, subacute bacterial endocarditis and colitis from the Army Medical Museum. Recent advances in bacteriology such as microbic dissociation and the Schwartzman phenomenon will be shown, and there will be a demonstration of bacteriophagy by Dr. Felix d'Herelle, New Haven, Conn.; postpartum infections from the Long Island College Hospital; subacute endocarditis, new type of bacterial toxins, and pathways of infections to the ear, from the Rockefeller Institute.——The twenty-fifth anniversary of the New York Society of Anesthetists, October 16-18, was addressed, among others, by Yandell Henderson, Ph.D., New Haven, Conn., on "The Anesthetist Therapeutist"; Dr. Irving L. Farr, Montclair, N. J., "The Psyche in Anesthesia"; Dr. Anna M. Stuart, Elmira, N. Y., "The Anesthetist Himself," and Dr. William Branower, New York, "General Anesthesia for Laryngectomy."

OHIO

Personal.—Dr. Harry L. Rockwood, commissioner of health of the city of Cleveland, has recently been announced as the new superintendent of the Mount Sinai Hospital. He will be succeeded by Dr. Harold J. Knapp. Dr. Rockwell has held the position of commissioner of health for twelve years.——Dr. Asher T. Childers, psychiatrist for Cuyahoga County Juvenile Court for the last two years, has been appointed chief of the psychiatric staff of Michigan.——Dr. Jackson Searles, Lisbon, has retired from medical practice to become a member of the faculty of the Ball State Teachers' College at Muncie, Ind. ——A complimentary dinner was given by colleagues to Dr. Valentino B. Di Loreto on his completion of twenty-five years in the practice of medicine in Steubenville.——Dr. Walter E. List, superintendent of the Minneapolis General Hospital, has been named superintendent of the Cincinnati Jewish Hospital.

Society News.—The Athens County Medical Society was addressed, October 6, by Dr. William Mithoefer, Cincinnati, on "Practical Points in Nasal Accessory Treatment."——The Toledo Academy of Medicine was addressed, October 3, by Dr. Jacob L. Bubis, Cleveland, on "Relation of Gynoplastic Repair to Modern Obstetrics."——A joint meeting of the Toledo Academy of Medicine and the Clinical Orthopedic Society will be addressed, October 31, by Dr. George W. Hawley, Bridgeport, Conn., on "Newer Apparatus in Treatment of Fractures of the Femur."——The Academy of Medicine of Cleveland was addressed, October 10, by Drs. Moses E. Blahd on "Spinal Anesthesia," and George Grey Turner, professor of surgery, University of Durham, and Hunterian professor and member of the council of the Royal College of Surgeons of England, Newcastle-on-Tyne, "Ruptured Gastric and Duodenal Ulcers." ——Dr. Franz Knoop delivered the twenty-third Hanna Lecture in the Institute of Pathology, Cleveland, on "The Significance of Intermediary Metabolism." Dr. Knoop is director of the Institute of Physiological Chemistry at the University of Tübingen, which professorship is said to be the oldest in Germany having been founded for Hoppe-Seyler.——Dr. Stuart Pritchard addressed the Eighth District Medical Society at Newark, October 2, on "Significance of the Cough as a Symptom." Dr. Pritchard made the trip from Battle Creek in his own monoplane.

OREGON

State Medical Election.—At the annual meeting of the Oregon State Medical Society, Portland, September 17-19, Dr. Thomas E. Griffith, The Dalles, was installed as president; Dr. Edward L. Zimmerman, Eugene, was made president-elect; Drs. Harvey J. Clements, Salem, John H. Fitzgibbon, Portland, and William T. Johnson, Corvallis, vice presidents; Drs. Richard H. Wellington and Frederick D. Stricker, Portland, treasurer and secretary, respectively, reelected. The next annual meeting will be held at Eugene. The revision of by-laws provided among other things the redistricting of the state into councilor districts. In the last four years, the society membership has increased more than 40 per cent.

PENNSYLVANIA

Fund for Institute of Mental Hygiene.—The Julius Rosenwald Fund has announced that a fund has been set aside to fill half of any deficit incurring up to a total of $17,500 for the first six years of the operation of the Mental Hygiene Institute of Pennsylvania Hospital. The purpose of the institute is to bring psychiatric service within the reach of persons of moderate means. In this country about 400,000 hospital beds are now used for mental patients.

Society News.—The Tenth Councilor District Medical Society and the Allegheny County Medical Society met jointly, October 21, and were addressed by Drs. John A. Heberling on "Diagnosis and Treatment of Early Joint Diseases"; George A. Holliday, "Arthritis in Infections of the Genito-Urinary System"; Paul B. Steele, "Acute Suppurative Arthritis," presentation of cases; Dewayne G. Richey, "Focal Infection in Rheumatic Fever, as Viewed by the Laryngologist," and Philip S. Hench, Rochester, Minn., "Clinical Consideration of Chronic Arthritis" and "Recent Progress in Study and Treatment of Rheumatic Diseases," illustrated.

Philadelphia

Personal.—Honorary degrees conferred at the celebration of medical progress at the University of Pennsylvania, October 10, included Surg. Gen. Hugh S. Cumming, Drs. James Ramsay Hunt, New York, William Gerry Morgan, Washington, D. C., Alfred Stengel, Alonzo Englebert Taylor, Stanford University, Calif., and William H. Welch, Baltimore, and Prof. Archibald V. Hill and Sir Walter M. Fletcher, London, England.

Prize in Pediatrics.—The Philadelphia Pediatric Society announces a prize competition to stimulate interest in pediatrics among practitioners of less than six years since graduation and residing in the Philadelphia metropolitan area. Investigations and studies to be presented must be limited to pediatric subjects. The first prize will be $100 and the second, $50, if the subjects submitted are of sufficient merit. Completed papers must be in the hands of the chairman of the prize committee, Dr. Percival Nicholson, 16 West Montgomery Avenue, Ardmore, Pa., not later than November 15.

Research on Heart Disease.—The Robinette Foundation of the University of Pennsylvania has opened a new method of research in diseases of the heart. It was developed in connection with the study of the nature of the contraction of the heart muscles in which the electrocardiograph is synchronized with roentgen photography of the heart's movements. In this new field it is possible to time accurately any point on the curve of movement within one one-hundredth of a second of the corresponding event on the electrical curve of action.. It has been found that certain types of diseases of the heart cause characteristic alterations from normal in curve of contact. In applying the technic of the study of the aorta, it is possible *to obtain* photographic records of human pulse waves and thus study the beginning of arteriosclerosis. The foundation, endowed by Edward Robinette, announced other projects at the celebration of medical progress at the University of Pennsylvania, October 10-11. Among these are studies of various social and economic groups, among which are 150 executives of a great corporation who carry the largest responsibilities, to determine the normal heart. The study of the familial relationships of heart disease has been instituted *in heart clinics* of the Pennsylvania Hospital with the support of the foundation. All available members of the family are given careful physical and mental examinations and subjected to laboratory tests to ascertain the influence of heredity on heart disease. The director of the Robinette Foundation is Dr. Charles C. Wolferth, assistant professor of medicine.

Society News.—The Philadelphia Academy of Surgery was addressed, October 6, by Drs. Irvin E. Deibert, Camden, N. J., and Francis C. Grant on "Observations on the Treatment of Osteomyelitis by the Orr Method" and "Results of Chorodotomy for the Relief of Pain," respectively.——The Pathological Society of Philadelphia was addressed, October 9, by Dr. Franz Knoop of the University of Tübingen on "Mutual Transformation of the Foodstuffs and Fixation of Nitrogen in the Body." ——Drs. James S. Plant, Newark, N. J., and Max Levin addressed the Philadelphia Psychiatric Society, *October 10*, on "Importance of an Adequate Cause in the Prognosis of Praecox Types of Reaction" and "Archaic Mental Pneumonia as a Defense Reaction in Schizophrenia."——The October 8 meeting of the Philadelphia County Medical Society was given over to a symposium on the blood diseases; the speakers were Drs. Max M. Strumia, John Eiman, Harold W. Jones and William P. Belk.——The Philadelphia County Medical Society devoted its meeting, October 22, to a discussion of "Recent Applications of the Fundamental Sciences to Certain Medical Problems"; the speakers were Wilder D. Bancroft, Ph.D., "Some Recently Demonstrated Protein Reactions of the Nerve Tissues"; William Seifriz, Ph.D., "Medical Aspects of Certain Plant Reactions"; Dr. Stuart Mudd, "Studies of the Mechanism of Antibody Action"; Dr. Seymour Dewitt Ludlum, "Medical Principles in Neurological Diagnosis," and Dr. William Egbert Robertson, "Discussion of the *Principles Presented and Their* Relation to General Medicine."——Among others, Dr. William Jackson Merrill addressed the Philadelphia Pediatric Society, October 14, on "Appendicitis Simulating Acute Arthritis of Hip."——The West End Medical Society was addressed, October 15, by Drs. Joseph Bank and Samuel J. Goldberg on intestinal flatulence and bronchitis, respectively.

VIRGINIA

Continuation Courses for Practitioners.—The Norfolk County Medical Society's series of October meetings will mark the first anniversary of the continuation education course for practitioners conducted by the department of clinical education of the state medical society. The Norfolk County Medical Society was addressed, October 13, by Drs. Thomas V. Williamson on "Emergency Cystoscopy in Ureteral Calculus," and George W. Schenck, "Some Observations on Head Injuries." No attempt has been made to give comprehensive courses or fundamental basic science courses. These will be left to the regularly organized graduate courses of the medical colleges. The aim has been to teach the medicine of today to the general practitioner mainly by practical and nonoperative clinics and clinical conferences held in his own immediate vicinity. Addresses were given, October 20, by Drs. Walter B. Martin on "The Value of Iron in the Treatment of the Anemias"; October 23, Allie D. Morgan, "Treatment of Convergent Strabismus"; Levin F. Magruder, "Technic of Localization of Foreign Bodies in the Eye," illustrated; L. Leroy Jones, Portsmouth, "Treatment of Foreign Bodies Imbedded in the Cornea and Complications"; October 27, Dandridge P. West, "Three Years' Experience with Goat's Milk in Infant Feeding," and William L. Harris, "What Progress in Infant Feeding?" A course in practical psychiatry for students of the Medical College of Virginia will be given at the Central State Hospital at Petersburg. This is the second year that the state hospitals of *Virginia have been opened publicly to the medical profession for* clinical instruction. Members of the state society are requested to write for any information concerning the extension courses in graduate medical education to the chairman of the department of clinical education, 5 East Franklin Street, Richmond, or to Mr. George W. Eutsler, P. O. Box 707, University.

WISCONSIN

University News.—Student infirmary facilities at the University of Wisconsin will be virtually doubled by the recent action of the board of regents when it was decided to construct an addition to the present infirmary at a cost of $100,000. The student health and infirmary fee was increased to $4.50 a semester.

Personal.—Dr. William T. Pinkerton has resigned as medical director of the Prairie du Chien Sanatorium, a post which he has occupied, with one short interlude, for more than twenty-six years. Dr. Pinkerton, it is reported, will devote all his time to private practice.——Dr. John H. Connell, Beloit, has accepted a position as junior pathologist in the department of medicine of Tulane University of Louisiana, New Orleans.

State Medical Election.—At the annual meeting of the State Medical Society of Wisconsin, September 11, Dr. Cornelius A. Harper, Madison, was installed as president and Dr. Otho A. Fiedler, Sheboygan, made president-elect. The secretary will be elected by the council in January. The next annual session will be held at Madison in September. The society was the recipient of a gavel of historical interest presented by the Douglas County Medical Society. It was made from a portion of the keel of the boat *Algonquin* built in 1843, just two years after the establishment of the state society. The boat was the first vessel to sail Lake Superior. The gavel will be used in all future sessions of the house of delegates. The house adopted the recommendation to increase the dues of the society from $10 to $15 a year, to become effective in 1931. One third of all members of the society were in attendance at this session.

Society News.—The thirtieth annual meeting of the Tenth District Medical Society was addressed at Eau Claire, September 30, among others, by Drs. Louis E.
and Francis D. Murphy, Milwaukee, on
and Their Treatment" and "Diabetes: It
Its Management," respectively.——"A *Differential Diagnosis* of Ulcerative Conditions of the Face" was the subject of Dr. Edward Allen Oliver, Chicago, before the Medical Society of Milwaukee County, October 10, and "Significance of Pruritus in Medicine" that of Dr. Francis Eugene Senear, Chicago.——The Barron-Polk-Washburn-Sawyer-Burnett County Medical Society was addressed, September 5, by Dr. Arthur S. Hamilton, Minneapolis, on "Pain and Its Interpretation."——Dr. Chester M. Kurtz, *Madison, spoke on "Diagnosis of Heart* Disease from the Standpoint of the General Practitioner," and Dr. Phillips F. Greene, Madison, "Chinese Medicine" before the *Trempealeau-Jackson-Buffalo* County Medical Society, August 28.——The fall meeting of the Wisconsin Urological Society will be held at Madison, November 21; among the speakers will be Drs. Harry B. Culver, Chicago, whose subject will be "Management of Posterior Urethritis and Some of Its Complications"; Vincent J. O'Conor, Chicago, "Unilateral Hydronephrosis," and Hermon C. Bumpus, Jr., Rochester, Minn., "Uroselectan."

GENERAL

Institute for Radiological Research.—Announcement has been made of the recent formation of the Radiological Research Institute with Dr. Edwin C. Ernst, St. Louis, as president and Dr. Rollin H. Stevens, Detroit, secretary. This is a philanthropic organization whose object is to direct and coordinate research and to collect and disseminate knowledge in radiology gained as a result of purely scientific experiments *or of* experience in practical medicine which results have proved to be of the greatest value in medical practice, the arts and in industry. It *aims also to render financial aid to research, to aid in the* production of radium in this country with an *effort to lower* its cost, and to place newly developed apparatus where it will render the greatest service to humanity. The institute will fully cooperate with existing organizations interested in research pertaining to the study, diagnosis and treatment of diseases, especially cancer. In accordance with its provisions for fellowships in radiologic research, three fellowships have been established for research on roentgen apparatus.

Society News.—The next annual meeting of the Federation of American Societies for Experimental Biology will be held in Montreal, April 8-11, 1931; the secretary is Howard B. Lewis, Ph.D., University of Michigan Medical School, Ann Arbor. ——Dr. Frederick J. Taussig, St. Louis, was elected president of the Central Association of Obstetricians and Gynecologists at the annual session in Excelsior Springs, October 13, succeeding Dr. Palmer Findley, Omaha, the first president of the organization.——The annual meeting of the Western Surgical Association will be held at Kansas City, Mo., December 5-6, with headquarters at the Hotel Muehlebach; the secretary is Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City.——At the annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons recently, Dr. Arthur H. Bill, Cleveland, was elected president, and Dr. Magnus A. Tate, Cincinnati, secretary. The next annual session will be held at White Sulphur Springs, W. Va., in September.——The next annual meeting of the Society of American Bacteriologists will be held at Boston, December 29-31; the secretary is J. M. Sherman, Ph.D., Cornell University, Ithaca, N. Y.——The twenty-seventh annual meeting of the American Association of Railway Surgeons will be held in Chicago, November 5-7, with headquarters at the Hotel Sherman. The program will include a symposium on head injuries.

Sickness Among Wage Earners.—Dean K. Brundage of the U. S. Public Health Service, working for the division of research of the Milbank Memorial Fund, recently found that workers in industry are healthier than the general population of the United States. His investigations to ascertain the extent of the disabling sickness among wage earning adults were based on industrial morbidity data covering several years and showed that in manufacturing industries in the country as a whole about 80 per cent of the men are below the age of 45. A larger proportion of the female industrial workers, about 90 to 95 per cent, is below the age of 45. He found that between the ages of 15 and 20 the age curve of illness in a general population group mounts more rapidly than in a typical industrial group. In the general population the trend is steadily upward from the ages of 20 to 24, but among industrial employees the frequency rates rose slowly from the ages of 25 to 40 and then declined at the age of 60, followed by a resumption of the upward trend. During eight years between 1921 and 1928, inclusive, respiratory diseases caused one half of all disabling sicknesses; digestive disorders were second. Contagious and infectious diseases caused about 3 per cent of the cases. Women, especially those married, tended to be absent on account of illness from 50 to 100 per cent more often than men, especially for short periods. Excessive use of alcoholic stimulants was most pronounced among men doing the heaviest and most disagreeable work. An excess in the number of influenza victims was noted among miners and employees of dusty trades, and the incidence of pneumonia was marked among employees of metal industries.

The Poliomyelitis Situation.—Epidemic poliomyelitis shows an upward rise in incidence for the country as a whole. Five hundred and ninety-four cases were reported for the week ended September 27, which represents an increase of *100 over the preceding week, according to Science News Letter.* Normally the seasonal increase would have reached its peak by the middle of October and additional reports should begin to show a decline in the number of cases. There are now more cases in the country than there have been for the last three years. The last large outbreak was in 1927 when at the peak 800 cases were reported and in the great epidemic of 1916 cases were reported by the thousands. In California, poliomyelitis showed a slight temporary rise after a recession in incidence. September 27, the disease was half as prevalent as in July. Increasing prevalence of the disease was noted in New York, Ohio, Kansas and other states, and in some communities drastic measures were inaugurated to curb the epidemic. Detroit has less than half the cases reported between January 1 and October 4, as compared with 1929, when there were seventy-eight cases. During September, officers of the Kansas Health Department made special efforts to check the rising incidence of poliomyelitis, especially in counties served by highways U. S. number 54 and U. S. number 81, where the disease seems to have centered. Newspaper reports showed an increase in prevalence of the disease during September in Minnesota, especially in twenty-three counties in the southwestern part of the state. Minnesota reported 205 cases and nine deaths over a six months' period. The state board of health has asked for an appropriation of $6,487.50 to aid in combating the disease. Ohio reported 100 cases recently. Other high figures were New York, 65; Illinois, 43; Massachusetts, 32; Maine, 21; Iowa, 21; Nebraska, 26; Wisconsin, 20, and Missouri, 18.

Foreign Letters

LONDON

(*From Our Regular Correspondent*)

Oct. 4, 1930.

Early Treatment of Mental Disease

The board of control of the lunacy administration in its report points out that the event of the year was the passage of the mental treatment bill, which enables preventive treatment of incipient mental illness to be carried out by providing outpatient clinics for voluntary treatment, a great departure from the previous official practice, of certifying and confining in asylums persons who were sufficiently demented to be a nuisance or a danger. The treatment of mental illness is assimilated to that of other forms of illness by provisions under which certain cases may be temporarily placed under treatment in institutions without certification and by the opportunities afforded of associating the general hospitals in the treatment of mental illness. The board expresses the hope that local authorities will realize that, from the point of view of humanity and economy, treatment cannot begin too early, and will see that any charge made for the reception of voluntary patients shall not be such as to discourage admissions in the incipient stage. Attention is drawn to the important provision in the act for the temporary treatment of nonvolitional patients on the recommendation of two physicians without the intervention of any judicial authority. The object is to enable incipient mental cases to receive treatment without the stigma of certification. Treatment under this provision is limited to a maximum of six months, subject to permission from the board to extend it, if early recovery appears probable. Another change of great importance is the statutory recognition of the outpatient clinic. Local authorities are now empowered to provide such clinics or to arrange for their provision with the voluntary hospitals. The outpatient clinic is considered the most effective means of bringing within the reach of skilled treatment persons in the earliest stages of mental instability. When a clinic is established at a local hospital it is recommended that the medical staff of the local authority's mental hospital should be associated with the staff of the hospital in the work of the clinic. Local authorities are empowered to make provision for the after-care of patients who have undergone treatment and to contribute to the funds of voluntary associations formed for the purpose. An attempt is made in the act to remedy a great grievance of physicians who sign lunacy certificates—the worry and expense of having actions brought against them by litigious persons on regaining sufficient sanity to be discharged from an asylum. This danger is so great that many physicians decline to have anything to do with lunacy certification. The act provides that persons doing anything under it shall not be liable to legal proceedings if they have acted in good faith and with reasonable care, and the onus of proving the contrary will be on the plaintiff, who must obtain leave from a court to proceed with an action. This will not be given unless the court is satisfied that there is substantial ground for alleging that the defendant acted in bad faith or without reasonable care. A significant change in terminology has been made. It is provided that the term "mental hospital" may be substituted for "asylum" in all official documents. The number of persons of unsound mind under all forms of care increased during the year by 1,307, as compared with an average increase of 2,167 for the last five years. The total number of cases in England and Wales was 142,387, or nearly 3.6 per thousand of population.

Proposed Medical Socialist Organization

In The Journal, August 16, page 543, it was explained that the British Medical Association had brought forward a scheme for a great extension of the form of medical socialism, known as national health insurance, not because either it or the medical profession desired this but because in the present socialistic phase of British politics they feared something worse—a state medical service. In both cases the state would provide a medical treatment for all, but, under the scheme of the association, physicians would continue to work under a contract and the profession would retain some autonomy. Under a state medical service they would simply be civil servants. In the medical profession there is a small body of socialists who desire such a service, and there is no doubt that the present socialist government would be pleased to introduce it if its hands were not so full of other problems. At the National Labor Club a meeting has been held to discuss the formation of a medical socialist organization. Dr. C. W. Brook, the convener, said that he had received a letter from Dr. Ewald Fabian of Berlin, stating that an international union of socialist physicians was about to be created. Dr. Brook advocated the formation of a medical socialist body on the following grounds: (1) as a means of pressing for the establishment of a properly organized national service, (2) as a means of contact through the International Union of Socialist Physicians with other national organizations, (3) as a means of devising legislation for the benefit of the health of the workers and of bringing pressure to bear on the authorities to carry it out, (4) as a means of propagating socialism in the medical profession (he would admit students as associates and so carry the campaign into the medical schools), and (5) as a means of working as an organized body of socialists within medicopolitical organizations. In the discussion that followed, Dr. Menon promised the support of Indian physicians in this country. The following resolution was passed unanimously: "That the members of the medical profession whose political views are in agreement with those of the labor party and with the ideals of socialism be organized as a political body and that a committee be formed to draw up a constitution."

Medical Tests for Automobile Drivers

Since the road traffic act was passed (The Journal, September 6, p. 738) the minister of transport and his officials have been busy with the necessary arrangements for bringing the various sections into operation. Many conferences have been held with automobile associations, manufacturers, insurance companies and trade unions representing members employed on road transport and bodies representing pedestrians. For the licensing of drivers there will be only one standard in all parts of the country. There will be two absolute bars to the granting of a driving license, even if the applicant already holds one. These are extremely defective eyesight and liability to disabling fits. Discussions are proceeding with the British Medical Association and with automobile organizations as to a scientific eyesight test. The broad principle to be adopted is the ability of the applicant to read the ordinary numbers of an automobile at a distance of 30 or 35 yards. Applicants will be required to state on their application forms that, so far as they know, they suffer from no complaint, such as heart attacks, epileptic fits or mental disease, which would interfere with their efficiency as drivers. If the applicant has any doubt he will be expected to take professional advice, as he will be liable to severe penalties for not disclosing essential facts. The disabled man presents some difficulty. If he already holds a license, it will be renewed if he declares that his driving has not been a source of danger to the public. A new applicant will be required to pass a driving test, of which details have been approved by representatives of automobile bodies and of the Disabled Men's Association. Applicants will also be required to produce a certificate that they are covered against third-party risks of death or bodily injury, and this certificate must be carried at all times.

PARIS

(From Our Regular Correspondent)

Oct. 1, 1930.

Neuritis in Drivers of Automobiles

During recent years, cervicobrachial neuritis has become a common manifestation in drivers of automobiles. It attacks almost exclusively those who drive closed cars and leave open constantly the window next to them; that is to say, it develops on the left side if the driver is seated to the left or on the right side if the steering wheel is located at the right. Left-drive cars are more numerous in France, since vehicles must keep to the right of the road, so that it is the left hand that is thrust out of the window in order to signal to the cars following that one intends to turn or to stop. The current of air that comes from the side, striking the shoulder and encircling the neck, causes, more especially on cold, damp days, the onset of the condition. The disorder is not found in drivers of open cars. It is a radicular neuritis of the brachial plexus, caused by an arthritis that has its seat at the level of the last cervical articulations, usually the fifth or the sixth. Pressure applied in that region will easily discover the painful spot. At this level, the periarticular swelling exerts a pressure on the medullary roots of the plexus. The pain has its seat in the shoulder and radiates toward the neck and the back. The circumflex nerve is most frequently affected, with the result that pains are provoked in the deltoid muscle and the brachial triceps. The pain is elicited by the movements that bring these muscles into action. But there are also spontaneous paroxysmal attacks lasting for several minutes, which come on in the evening, or at night especially, seriously disturbing sleep. The pains are exacerbated by cold and damp weather. This disorder attacks chiefly rheumatic subjects, and affects the elderly and aged more than it does young persons. Dr. Rathelot of Montpellier, who has published a monograph on this disease, refers to it quite aptly as "sciatica of the arm." The condition presents a similarity to sciatica. It is interesting to note also that, while in sciatica, in accordance with the Lasègue sign, an acute pain is elicited when the patient, while lying on his back, raises the leg, with the thigh flexed, toward the abdomen, a similar pain is provoked when the arm is extended horizontally and backward and the forearm is raised in supination, which brings about an elongation of the plexus. It is a condition that is not so easy to get rid of. Diathermy and infra-red rays have been employed without great success. Massage of the vertebrae is rather dangerous unless it is carried out with great prudence. The best treatment is exposure of the region to roentgen rays for ten minutes, twice a week, in small doses, for at least a month. Success has attended also local applications of radium, spread about in containers, for several days in succession.

Enlargement of the Radium Institute

Belgium radium continues to be sold at a high price, in spite of the competition offered by Russian radium; hence a large parcel of ground has been placed at the disposal of Madame Curie for the erection of a factory for the manufacture of radium. At the same time the Institut du radium, of which she is the codirector along with Professor Regaud, having outgrown its small quarters by reason of the afflux of patients, is to be enlarged, the city of Paris having placed at her disposal a large plot of ground contiguous to the institute, on which research laboratories and a hospital for the application of radium treatment will be built.

Trypanosomiasis in Kamerun

Severe criticism has been raised in Germany against the sanitary organization of Kamerun since, after the war, it ceased to be a protectorate of Germany and became a protectorate of France. It has been asserted that, while under German control, there were only 6,000 cases of trypanosomiasis in the country and that now there are 315,000 cases. An article published by the colonial minister tones down these exaggerations. There are at present 115,000 cases. The Germans, however, had only two or three physicians prospecting in a fractional part of the country. There are at present eleven physicians, aided by native men nurses, with the result that they have explored the whole country and made an exact enumeration of cases. Isolation camps have been created where groups of patients are assembled and subjected to intensive treatment. It is thought that, within three years, the disease will have totally disappeared from the country, since the Belgians are carrying on the same intensive crusade in the neighboring Congo region.

Professor Censured for Advertising

The council of the syndicate of the physicians of the Seine (region of Paris) recently reached three decisions that it has made public through the press. The action of the council is without precedent and appears likely to create dissension in the medical profession. The syndicate is possibly within its rights in watching over the good name of the medical profession and in censuring confrères who have committed a tort against the rules of the profession; but heretofore it has never given public notice of the events. The first vote of censure expresses disapproval of the conduct of certain physicians occupying official positions at the Faculté de médecine and on the staffs of the hôpitaux de Paris, who, in public lectures and in the newspapers, took part in a controversy on the subject of the division of fees between the surgeon and the physician who refers patients to him. The resolution says: "These are matters that may be censurable or not, depending on the circumstances. The public is not to be the judge, and if misinformed, the public may get impressions that reflect on the credit of the whole profession." The second resolution censures physicians occupying an official position—professors, for example—who allow their names to be employed by a commercial house in order to promote the sales of a pharmaceutic specialty. It is evident that a certain professor is meant who, after publishing his articles on the use of magnesium chloride as a preventive of cancer and as a means of retarding the approach of old age, is said to have allowed his name to be used to promote the sales of a certain brand of magnesium chloride tablets. The third resolution is aimed against physicians who, in a recent edition of the official telephone directory, have had their names printed in display type, followed by statements as to the various diseases that they assert they are able to cure, in order to attract the attention of the public. For this privilege they pay, of course, an additional sum, so that it is, in reality, nothing other than a commercial advertisement. The council of the syndicate of physicians regards such procedures as reflections on the dignity of the profession and felt it was its duty to express its condemnation. It is the general opinion, however, that, while the censure may be justified, it would have been better if it had been expressed at a meeting of the council on medical ethics and not communicated to the public.

Houses of Prostitution Closed in Strasbourg

For many years there have existed in France houses termed "maisons de tolérance," occupied by prostitutes, who are subjected to periodic examinations. Two opposing groups of citizens have likewise existed for years, one of which argued for the regrettable but undoubted necessity of such places, in order to limit, by means of supervision, the propagation of venereal disease; the other group demanded that such places be suppressed in the name of morality and out of respect for the dignity of women, and for the reason that their effect on venereal prophylaxis is nil. In recent years an experiment has been tried in Strasbourg, where, in pursuance of a prefectural decree, such houses have been closed since Jan. 1, 1926. An endeavor has been made to discover whether, as a result of this closing measure, the cases of venereal disease in Strasbourg have increased or diminished. Statistics have been collected but their showings were interpreted so diversely that an official commission composed of Dr. Lévy-Bing, physician on the staff of the department for venereal women of the Infirmerie de la prison St. Lazare in Paris, Dr. Cavaillon, head of the prophylaxis service of the ministry of public health, and Madame Avril de Ste. Croix, president of the Conseil national des femmes françaises, was appointed to make an inquiry on the subject. The commission reached the following conclusions: The first two years that followed the closing of the "maisons de tolérance" in Strasbourg were followed by a marked increase of syphilis in that city. It is true, however, that these houses were nearly all transformed into saloons, or beer-shops, where prostitution, which had been open and supervised medically, became clandestine and unsupervised. During the next two years, however, there was a notable decrease in venereal disease, as confirmed by hospital reports and by the infirmaries at the garrisons. No exact statements can be made with reference to the cases cared for by the physicians in their private offices. The commission concluded that the closing of the "maisons de tolérance" has had no recognizable influence on the status of venereal disease in Strasbourg, and that the decline in the number of cases is more likely due to the greater intensity with which, of late, the antivenereal crusade has been waged.

MADRID

(From Our Regular Correspondent)

Sept. 25, 1930.

Self-Destruction in Twenty Years in Spain

Dr. Miguel España has prepared statistics on suicide in Spain in the period from 1907 to 1927. The rate in 1927 was 100 per million of population, which gives a total figure of 2,300 suicides for the year. During the twenty years, the number of suicides has been continually increasing. In 1907 the annual rate was 69 per million people and 1,050 men and 335 women did or attempted to commit suicide. In 1927 the suicides comprised 1,515 men and 528 women. The number of suicides committed during the twenty years was 31,261 (23,908 men and 7,353 women). The number of attempted suicides during the same period was 6,001 (3,632 men and 2,369 women). Among the men who killed themselves in 1907 there were 466 bachelors, 598 married men and 213 widowers. In 1927 the figures were 474 bachelors, 733 married men and 725 widowers. In the last year the number among married men and widowers was about the same. The month in which the fewest suicides occur is November; the month in which the largest number is committed is June. The method employed was as follows: firearms, 8,683 men and 509 women; swords and other cutting weapons, 2,110 men and 411 women; drowning, 3,904 men and 2,746 women; poisoning, 998 men and 2,177 women; hanging, 7,259 men and 2,012 women; asphyxia, 278 men and 116 women; leaping, 1,976 men and 1,282 women; by trains, 1,847 men and 347 women. The causes were: illness, 9,933 men and 4,000 women; disappointment, 2,122 men and 283 women; misfortune, 1,330 men and 94 women; misery, 871 men and 238 women; dismissal from positions, 171 men and 18 women; domestic troubles, 1,147 men and 832 women; love, 754 men and 703 women; jealousy, 128 men and 56 women; honor, 98 men and 119 women.

Intercontinental Transmission of Heart Sounds by Telephone

The Telephone Company of Spain gave recently a scientific demonstration to a group of physicians, consisting in the transmission of sounds of the heart and lungs of normal persons and patients with diseases of the heart and respiratory tract from Buenos Aires to Spain. The sounds were transmitted first by radio and then by telephone, so clearly that Spanish physicians who attended the demonstration were able to make a diagnosis in Spain at the same time that it was made at Buenos Aires by Argentine physicians who were actually present with the patient. Then a discussion between Dr. Montellano, who was at Buenos Aires at the bedside of the patients, and the Argentine physicians followed the demonstration, and this was also transmitted by telephone. The diagnosis made by the Argentine physicians agreed with that made by the Spanish physicians. The demonstrations will be repeated, and physicians who wish to attend will be inscribed in a list, which at Madrid alone numbers more than 850.

Epilepsy

At the Academia Médico Quirúrgica of Madrid, Dr. Sanchiz Banus read a paper on epilepsy in which he said the disease is more common in men than in women, and that as a rule epileptic mothers transmit the disease to their male children while epileptic fathers transmit it to their female children. Headache in the patient or in near relatives has a relation to epilepsy. The speaker observed this symptom in 54 per cent of epileptic patients, in 64 per cent of mothers, in 8 per cent of fathers and in 24 per cent of near relatives of persons with epilepsy. The following familial characteristics were observed: an exaggerated feeling of mysticism in 24 per cent of the cases and pathologic irritability in 36 per cent of the cases. The speaker considered some accidents of a mechanical type during labor as a relatively frequent factor in the etiology of epilepsy.

Dr. Lopez Aydillo spoke on epileptic equivalents (headache, impulses, nocturnal enuresis, left-handedness, somnambulism, night terrors, dipsomania and narcolepsy) which he observed in 250 patients with typical epilepsy. Epileptic parents may transmit to their children either the disease itself or epileptic equivalents; parents who have epileptic equivalents may transmit either the epileptic equivalents which they have, or the disease itself which in them was not entirely developed, since both epilepsy and epileptic equivalents are originated from the same epileptic genotype.

Dr. Vallejo Nájera spoke on the medical treatment of epilepsy. Since the pathogenesis of the convulsions is unknown, the mechanism by which effective antiepileptic remedies control the crisis cannot be determined. Phenobarbital is the remedy that yields the best results against epilepsy, and next in importance is combined treatment with bromides and borates. A combined treatment of calcium and parathyroid extract reestablishes the calcium equilibrium of the blood. The results with the ketogenic diet are fair, but it offers difficulties which can be overcome only in infants.

Dr. Villaverde spoke on the surgical treatment of epilepsy. Lesions of the cornu ammonis, disappearance of myelin and atrophy of the brain convolutions have been observed in epilepsy. The speaker believes that the removal of the suprarenal glands and the resection of the superior cervical sympathetic ganglion of epileptic patients do not give satisfactory results. Trepanation, when used, should be made according to Kocher's method. Generally there is a pessimistic feeling against the few resources offered by surgery in the treatment of epilepsy.

False Diagnosis of Syphilis

At a meeting of the Academia Médico Quirúrgica of Madrid, Dr. Gay stated that in 7 per cent of the cases diagnosed as syphilis the diagnosis is wrong. The penal code of Spain imposes punishments for wrong diagnosis made on several conditions, but especially for the wrong diagnosis of syphilis. The speaker believes that the diagnosis of syphilis should be made on the basis of ultramicroscopic examinations of the lesions. Dr. Bejarano said that the average physician criticizes syphilologists because they seem to make a diagnosis of syphilis more frequently than the disease really is present. The speaker agrees that the diagnosis of syphilis should be based on ultramicroscopic observations of the lesions and not on the clinical symptoms presented by the patient. A weakly positive serologic reaction is not by itself an indication for antisyphilitic treatment. Dr. Covisa said that no antisyphilitic treatment should be given on the assumption of syphilis until the diagnosis of the disease is proved by the ultramicroscopic examination of the lesions, if the patient is in the first period of syphilis, or of a complete serologic examination if the patient is in the more advanced periods of the disease.

Serotherapy in Poliomyelitis

Dr. M. Bonavente recently presented a paper on poliomyelitis based on studies made at the Hospital del Niño Jesús during the last epidemic of poliomyelitis in Madrid. The author made the following conclusions: In the preparation of stock serums, careful asepsis is necessary. The activity of serums is in relation to their biochemical modifications. Serums reach their peak of activity in three or four months after their preparation. The author compared results obtained in poliomyelitis with the serum of convalescents and those obtained with serum of normal persons or antidiphtheritic serum and also with the cases in which no serotherapy was given. Patients treated with convalescent serum had a regression more rapid than those treated with other types of serum or those to whom no serum was given. Serum of convalescents should be given early in poliomyelitis to avoid spinal cord congestion and paralysis.

BERLIN

(From Our Regular Correspondent)

Sept. 29, 1930.

The Annual Meeting of German Scientists and Physicians

The Gesellschaft deutscher Naturforscher und Aerzte held its annual session in Königsberg, October 7-10. In his address of welcome, the Prussian *ministerpräsident,* Dr. Braun, said: "It is my heartfelt desire that your session may receive widespread attention in these days of political stress in our fatherland, far beyond the circles interested in pure science. It must be admitted that the quiet work of the scientific investigator is not yet appreciated in our country as it should be. The worship and glorification of the mailed fist observed today among our people constitute a sad and serious sign of mental aberration." It was pleasing to hear his enthusiastic words with reference to the heroism and the true leadership of the great scientific investigators who are working to promote the public health and to extend the bounds of knowledge, thereby setting goals for the oncoming generations to strive to reach and surpass.

The transactions gave an insight into many branches of scientific medicine; into the progress that is being made in all fields, and into the chief questions that, at present, occupy the minds of research workers and practitioners.

From the philosophic standpoint, the most important address was that of Prof. David Hilbert, mathematician, of Göttingen, who took as his subject "Naturkenntnis und Logik." According to Hilbert's conception of mathematics, it exerts an important influence on our view of the world and it may, in a sense, be said to constitute a world view in itself. The results of this exact science, which serves as an instrument of mediation between theory and practice and between thinking and observing, justify, he thinks, the declaration: "Instead of 'We cannot know,' our watchword must be: *we must know and we will know.*"

The second address was a memorial to Lothar Meyer. F. Paneth, chemist, of Königsberg, explained the development and the present status of our knowledge of the elements of the physical universe; the progress made in the study of the electrons, and the Rutherford-Bohr theory of electrically charged atoms. Since the research of Moseley, who fell in the battle of the Dardanelles, in 1915, not yet 28 years of age, we know that the positively charged nucleus constitutes the basis of the system of the elements and not, as Lothar Meyer and Mendelyeev had assumed, the atomic weight.

In the medical section, Hans Fischer, chemist, of Munich, who is also a physician, gave a comprehensive insight into the chemical connections between hemin, bilirubin and the porphyrins, adding many interesting physiologic and clinical observations. Some important connections with one of the greatest problems of organic chemistry were presented by the speaker and considerable light was thrown on them. These statements were supplemented by an address by Borst, pathologist, of Munich: "Morphologic Aspects of the Porphyrins." It became evident that his observations coincided closely with those of Fischer. Poppe of Rostock followed with a paper on "The Etiology, Pathogenesis and Experimental Diagnosis of Infection with Bacillus of Bang." W. Stepp, internist, of Breslau, gave an excellent clinical survey of this disease, which is at present in the forefront of medical interest. The most effective method of treatment consists in injections of increasing doses of killed Bang bacilli, which may now be procured in the open market.

The second general session was opened by Heinroth, zoologist, of Berlin, director of the Berlin Aquarium and the Rossitten ornithologic exhibit (Vogelwarte), who spoke on "Development of Early Bodily and Mental Characteristics in Domestic Birds."

Professor Bumke of Munich discussed with eloquence the topic of psychoanalysis. It is a natural corollary of the historical development of the theory of psychoanalysis, and also of its content, that the attitude of the individual investigator toward it must always be a subjective attitude. For almost thirty years, Bumke has been an opponent of this movement. While he recognizes the preeminent mental qualities of Freud, he rejects absolutely his teachings. But still more than the content of Freud's teachings, he opposes the methods on which Freud bases his teachings, because, in his opinion, they are not compatible with the principles of exact scientific research, since they cannot be checked up or substantiated by other investigators. After Bumke had described, in a few words, the attitude of various scientific investigators to Freud's theory, he mentioned the views of Thomas Mann, who has declared Freud's libido theory to be natural science in the form of romanticism and describes it as a manifestation of modern irrationalism. "Did Thomas Mann misunderstand Freud; do the rest of us who oppose him fail to comprehend him, or is (which appears more likely) psychoanalysis itself full of contradictions?" Charles Maylan, an adherent of psychoanalysis, thinks Freud has been misunderstood. According to Maylan, psychoanalysis was an outgrowth of Freud's resentment. His hatred of his *father and of the pope,* who is identified with the father and who, at the same time, is the head of christendom, and his dissatisfaction with scientific leaders, who withheld from him so long just recognition—all these feelings have tinged Freud's pen. One need not accept Maylan's interpretation, and one may even regret, for reasons affecting humanity in general, that the book was ever written. But one must admit that psychoanalysis did not come into being in the manner that its adherents maintain—by the application of an exact scientific method; by the establishment of incontrovertible facts and by a clear and intelligent study of such facts. Freud can perhaps be called, in one sense, a romanticist, because he does not derive his views from an application of his method but has had to adapt his method to fit his opinions. Freud's appearance on the horizon can best be understood by considering somewhat closely the period in which he began his work.

In the tenth decade of last century, there arose on the horizon two men, each appearing to possess the qualifications necessary for the creation of a new psychology: Dilthey and Freud. Dilthey was soon forgotten by the psychologists. Freud, with pronounced aptitude for psychology, has an artistic insight into the profound and obscure relationships of the psyche. He is fettered, however, by a materialistic attitude of mind. When he takes up scientific work, he has first to translate everything that is psychic into its biologic counterpart; he appears compelled to view his subject dynamically, from the standpoint of energy, and to talk about natural science when he really has in mind psychic relationships. When he comes in contact with the irrational or the subconscious, it has to be promptly rationalized and mechanized, and hypotheses are set up that may be regarded as irrational or, with equal correctness, as rudely materialistic. The subconscious with Freud is a subpsyche that *elaborates the superconscious material supplied by the emotions and the intellect, but without furnishing the superconscious realm anything other than completed ideas.* Bumke came to speak of Freud's interpretations—of the sexual substratum by and through which everything in the subconscious is regulated. He brought up interpretations of dreams as given by Freud, which are so schematized that one is reminded of translations made with the aid of a precise glossary. The real ego, which thinks and feels, desires, hates and loves, and which, above all, is "always sexually charged," not only deceives others but deludes and misleads constantly its own superconsciousness. The whole thing is assuredly a myth—not irrational, however, but puzzled out with all manner of subtlety and elaborated with all the devices of the dialectic art. A doctrine that constantly confuses possible with established facts, that does not distinguish between facts and interpretations, is not only not entitled to be classed under the natural sciences but is not entitled to be regarded as belonging to "science" at all. It lacks spontaneity because it comes from a cold and erratic intellect given over to gloomy speculation. A subconscious mind such as Freud describes—which thinks and feels—such a complicated subpsyche has never been shown to exist. There is, to be sure, a subconscious area, something that we do not wish to know and therefore thrust aside so far as possible. The double nature of the psyche has been recognized by poets. Faust has in Mephistopheles one who plays "opposite" to him; but Faust no longer needs Mephistopheles after his soul becomes purified. Were it not for this dualism of the soul there would be no particular merit, Bumke points out, for one to conduct himself fairly decently. As for the future of the freudian doctrine, Bumke ventures the opinion that the method will fall into desuetude because, in reality, it proves nothing and constantly distorts facts to fit its hypotheses. But certain perceptions, which are the products of the psychologic talent of their creator, will remain. The fundamental insight that the final goal of all psychology must be to comprehend man as a whole appears likely to be a permanent acquisition. Bumke's presentation was a rousing critical appeal, as *Aschoff justly emphasized in his words of appreciation* addressed to the author, and will cause every one to consider anew his attitude toward freudism.

The third speaker was Professor Teutschlaender of Heidelberg, who discussed "Cancer as a Disease Common to the Whole German People." About every tenth German who dies after the age of 40 dies from cancer. As in other countries, the mortality from cancer is increasing also in Germany, and it threatens to exceed that of tuberculosis. It is estimated that the annual number of cases in Germany ranges from 100,000 to 200,000 cases. The prevention of cancer is of the greatest importance. In the formation of cancer three factors of equal importance are involved: (1) an irritant acting on proliferative cells and set up by a factor acting from without or originating within the organism—the causative agent; (2) the predisposition, local or general disposition of the organism, which enables it to respond to the irritation set up by the causative agent with a cancer formation, and (3) in case the disposition is not yet fully developed, sufficient exposure; that is, the opportunity for sufficiently long action of the irritant. These three factors may vary as to their respective potencies, and particularly, one factor may be highly developed while the others are but weakly operative. Thus, cancer formation may sometimes be the expression of an acquired or inherited constitution, or it may be conditioned by certain environmental factors or the subject's mode of living. The decisive specific factor does not attack from without; it lies or develops within the organism itself; it is endogenous. As there is virtually no contagion through cancer patients and also heredity plays no considerable rôle in man, the most important factor with reference to cancer disease as affecting the masses of the people is the nature of our present modern civilization, which, owing to the departures from nature in customs and habits of living and the ever increasing industrialization, brings about an enhancement of the three factors that play the chief part in the etiology of cancer. Evidence for the effects of our form of civilization on the spread of cancer is furnished, on the one hand, by the increased influence of a considerable number of etiologic factors, and, on the other hand, by the fact that today, to an ever increasing extent, cancers are diagnosed that owe their origin solely to the cultural trends and therefore may reasonably be termed "the cancers of modern civilization." The tar and dye industry, which dates its origin back less than a century, is putting daily on the market new products, some of which possess cancer-producing properties. The industry affords a wide field for the action of these products and, in fact, it arranges the tables for a veritable nation-wide experiment through industrial exposure, which, in turn, brings about a premature predisposition such as would not be acquired physiologically until a much later age is reached. The unsuitable diet of civilized nations may, on the one hand, through direct irritation of the mucosae of the digestive tract, and, secondly, by way of intoxications and disturbances of metabolism, exert a predisposing effect. In addition to the increasing number of occupational cancers, the cancers that develop from the habitual ingestion of arsenic may be regarded as cancers intimately associated with the nature of modern civilization. While it is doubtless true that many cancers are causally conditioned by our peculiar type of civilization, it would be wrong to consider all forms of cancer as the result of such influence. However, the increase in cancer is not a necessary accompaniment of civilized life as we know it, since we can already prevent occupational cancers and certain other cancerous formations not associated with our type of civilization. By destroying the evil effects of cancer-producing noxae—possibly also by bringing an influence to bear on constitutional factors—the spread of cancer must be combated, and already much has been accomplished in this direction by industrial hygiene. However, it will not be possible to eradicate cancer entirely with the sole application of hygienic measures. But with the aid of prophylactic measures, education, early treatment and the elimination of manifestations known as preconditions of cancer, which often cause patients little discomfort at the time, it must prove possible to reduce the number of cancer patients. It is better, and, as it seems, much easier, to prevent cancer than to cure it.

In addition, there were many special sessions on single subjects and combined subjects; thus, on radium surgery, roentgenologic diagnosis of the large intestine, benign disorders of the mammary gland and cancer of the breast, the rôle of the nucleus and the plasma in hereditary transmission, the migration of nematode larvae (with an excellent film), the origin of parasitic diseases in general, the eye and radiant energy, thrombosis and embolism, trachoma, social problems, and many other subjects of a similar nature. Professor Askanazy of Geneva explained the nature of the problem of comparative pathology, or a comparison of the pathologic phenomena of various peoples. The scope of the problem includes also the immunity or predisposition of the races with respect to individual diseases: the nature of the landscape as the source of a joyous disposition, of an earnest view of life and of resistance to disease. For general hygiene and for the prevention and cure of individual diseases, comparative pathology may have great value.

Marriages

ROBERT M. THOMAS, Oakland, Calif., to Miss Peggy Amelung of Los Angeles, in Worthington, Ohio, August 23.

JOHN WILLIAM HUFFMAN, Tucson, Ariz., to Miss Florence Kearnes of Evanston, Ill., August 18.

LAURENCE M. MOORE, Benton, Ill., to Miss Hazelle Dean Boland in Topeka, Kan., August 16.

GEORGE B. DORNBLASER, Hazelton, Pa., to Miss Grace Mildred Altmiller, August 12.

HOMER S. MCCOY, Sylvester, Ga., to Miss Eva Mae Bius, August 17.

Deaths

Hartstein Wendell Page, Worcester, Mass.; Medical School of Maine, Portland, 1888; member of the Massachusetts Medical Society, the American Psychiatric Association and the New England Society of Psychiatry; formerly superintendent of the Hospital Cottages for Children, Baldwinsville; aged 73; died, August 29, in York Beach, Me., of coronary thrombosis.

Thomas Benjamin Smiley ⊕ Mount Vernon, S. D.; University of Bishop College Faculty of Medicine, Montreal, Que., Canada, 1893; past president of the South Dakota State Medical Association; delegate to the American Medical Association, 1911-1912; aged 64; died, September 29, of lymphatic leukemia.

Charles Bliss Stockwell, Port Huron, Mich.; Harvard University Medical School, Boston, 1878; member and past president of the Michigan State Medical Society; past president of St. Clair County Medical Society; aged 79; died, October 7, in Montour Falls, N. Y.

Charles E. Chapin ⊕ Bloomington, Ill.; Rush Medical College, Chicago, 1891; past president of the McLean County Medical Society; medical director of the Brokaw Hospital; aged 64; died, September 26, of cerebral hemorrhage.

Adam Young Myers ⊕ Hyndsville, N. Y.; Albany Medical College, 1882; past president of the Medical Society of Troy and Vicinity, and the Schoharie County Medical Society; aged 77; died, October 1, of cardiorenal disease.

Samuel Gayle Deatherage, Sugar Land, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1892; member of the State Medical Association of Texas; aged 59; died, June 5, in Missouri City, of myocarditis.

Samuel G. Worley, St. Augustine, Fla.; Atlanta Medical College, 1882; member of the Florida Medical Association; aged 74; died, in September, in a hospital at Grantville, Ga., of paralysis and hypostatic pneumonia.

John T. Perry ⊕ Tulsa, Okla.; University of Arkansas School of Medicine, Little Rock, 1906; on the staff of the Morningside Hospital; aged 55; died, August 21, of septicemia following an infection on the face.

Norman William Andrews, Battle Creek, Mich.; University of Michigan Medical School, Ann Arbor, 1880; aged 72; died, September 13, in the University Hospital, Ann Arbor, of myocarditis.

McCord G. Roberts, Springfield, Mo.; St. Louis College of Physicians and Surgeons, 1891; member of the Missouri State Medical Association; aged 69; died, August 27, of cerebral hemorrhage.

George Clyde Ruble, Santa Ana, Calif.; University of Oklahoma School of Medicine, Oklahoma City, 1922; member of the California Medical Association; aged 31; died, June 3, of uremia.

Gilbert Haven Galford, Ashland, Wis.; Hahnemann Medical College and Hospital, Chicago, 1908; aged 47; was drowned, September 21, in the Chippewa River, when his boat was capsized.

Bennett Merwin Hines ⊕ Uvalde, Texas; University of Nashville (Tenn.) Medical Department, 1894; city and county health officer; aged 60; died suddenly, August 28, of heart disease.

Clarence Eugene Bulette, Las Vegas, Nev.; Gross Medical College, 1897; aged 62; died, March 25, in the Ferguson Hospital, of chronic nephritis, myocarditis and arteriosclerosis.

Alfred Gideon Kyle, Knoxville, Tenn.; Memphis Hospital Medical College, 1900; member of the Tennessee State Medical Association; aged 60; died, August 30, of cardiorenal disease.

Bret Albert Swartz, Monrovia, Calif.; Medical Department of the University of Southern California, Los Angeles, 1917; aged 40; died, July 24, of pulmonary tuberculosis.

Matt Russell Root ⊕ Denver; Colorado School of Medicine, Denver, 1897; member of the American College of Surgeons; aged 66; died, in September, of heart disease.

Claude A. Avery, Bethalto, Ill.; Barnes Medical College, St. Louis, 1903; member of the Illinois State Medical Society; aged 52; died, September 20, of heart disease.

Kurt L. Elsner, Brooklyn; Universitat Munchen Medizinische Fakultat, Munich, Bavaria, Germany, 1896; aged 57; died suddenly, September 17, of arteriosclerosis.

Frank Edgar Stowell ⊕ Worcester, Mass.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1903; aged 51; died, August 31, of pulmonary tuberculosis.

Alexander Smith Sim ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1904; served during the World War; aged 50; died, September 15, of heart disease.

Clareld Edison Dorland ⊕ Devils Slide, Utah; Northwestern University School of Medicine, Chicago, 1907; aged 50; died, August 19, of cerebral hemorrhage.

William Kennedy Williams, Phoenixville, Pa.; State University of Iowa College of Medicine, Iowa City, 1880; aged 84; died, September 12, of uremia.

Glenn Raymond Ray, Decatur, Ill.; University of Illinois College of Medicine, Chicago, 1929; aged 27; was killed, September 15, in an automobile accident.

Walter Scott Spence ⊕ Hopedale, Ohio; Medical Department of Western Reserve University, Cleveland, 1892; aged 64; died, September 19, of heart disease.

Henry Charles Towle ⊕ Boston; Medical Department of the University of the City of New York, 1877; aged 78; died, September 5, of cerebral hemorrhage.

George O. W. Farnham, Lincoln, Neb.; University of Vermont College of Medicine, Burlington, 1884; died, September 5, of carcinoma of the stomach.

Mark Straus Polak, New York; Eclectic Medical College of the City of New York, 1892; aged 63; died, August 15, of carcinoma of the sigmoid flexure.

John William Shute, Bishop, Calif.; Hahnemann Hospital College of San Francisco, 1900; aged 62; died, July 23, of chronic parenchymatous nephritis.

John Anthon Callender, Oakland, Calif.; Medical Department of Columbia College, New York, 1868; aged 85; died, July 18, of cerebral hemorrhage.

Thomas Harrison Stetler, Pawpaw, Ill.; Chicago Medical College, 1876; aged 83; died, September 27, of uremic poisoning following chronic nephritis.

Griffith William Prees, Cambria, Wis.; Miami Medical College, Cincinnati, 1888; aged 79; died, September 8, of carcinoma of the stomach.

Charles H. Kaetel, Milwaukee; Pulte Medical College, Cincinnati, 1877; aged 80; died, September 6, of senile dementia and arteriosclerosis.

Noah Frederick Schmucker, *Mount Jackson, Va.;* Baltimore Medical College, 1897; aged 58; died, September 14, of diabetes mellitus.

Martin Luther Stiffler, St. Paul; University of Colorado School of Medicine, Denver, 1913; aged 43; died, September 7, of heart disease.

William J. Webb, Danville, Ill.; Columbus (Ohio) Medical College, 1884; aged 71; was found dead in bed, September 24, of heart disease.

John S. Cummins, Rosiclare, Ill.; Medical College of Evansville, Ind., 1883; aged 81; died, in September at Metropole, of arteriosclerosis.

Emmett B. McCormick, Owensboro, Ky.; Hospital College of Medicine, Louisville, 1881; aged 76; died, September 13, of heart disease.

Sefron C. Culpepper, Wiggins, Miss.; Louisville (Ky.) Medical College, 1894; aged 59; died, September 15, of pneumonia.

William S. Gordan, Converse, Ind.; American Medical College, St. Louis, 1890; aged 64; died, August 24, of heart disease.

Fred G. McMitchell, Gary, Ind.; Meharry Medical College, Nashville, Tenn., 1914; aged 50; died, July 30, of heart disease.

J. M. Blair, Monroe, N. C.; Louisville (Ky.) Medical College, 1887; aged 66; died, September 10, of cerebral hemorrhage.

Charles William Baker, Rossville, Tenn. (licensed, Tennessee, 1908); aged 58; died in August.

Bureau of Investigation

MORE MISBRANDED NOSTRUMS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

Michael's Cold Tablets.—The C. P. Products Company, Kokomo, Ind., shipped in December, 1928, into Illinois a quantity of Dr. Michael's Cold Tablets that were declared misbranded. They were found on analysis to be brown-coated tablets containing, essentially, acetanilide, sugar, talc, red pepper and a small amount of the laxative, phenolphthalein. The claims that it was a remedy for influenza, acute catarrh, neuralgia and fevers, and other conditions, were declared false and fraudulent. In April, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16783; issued May, 1930.*]

Mosso's Oil of Salt.—The C. A. Mosso Laboratories of Chicago shipped in May, 1928, and January and April, 1929, a quantity of Mosso's Oil of Salt that was declared adulterated and misbranded. The federal chemists reported that the preparation consisted essentially of linseed oil, oil of turpentine, camphor and phenol, and that "bacteriological examination showed that the product was not antiseptic." The claims that the product would check infection, that it was antiseptic and germicidal, that it was a valuable aid in the treatment of pyorrhea and other diseases of the mouth and gums, that it would check the flow of blood, and that it would do many other things, were declared false and fraudulent. In June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16778; issued May, 1930.*]

OIL-of-SALT
The New Antiseptic and Healant
Keep a Supply Always on Hand in Home, Shop, Office or Factory
MOSSO'S
OIL-of-SALT
ANTISEPTIC
First Aid to the Injured
C. A. Mosso Laboratories Chicago
FIRST AID TO THE INJURED

[Mosso's Oil of Salt was analyzed in the A. M. A. Chemical Laboratory in 1915 and an article on the subject was prepared by the Bureau of Investigation and published in The Journal, August 14, 1915. The matter is reprinted in the pamphlet "Miscellaneous Nostrums."]

Nozeline. — The Nozeline Laboratory, Long Island City, N. Y., in January, 1929, shipped into New Jersey a quantity of Nozeline that was declared misbranded. Analysis by the federal chemists showed it to consist essentially of mineral oil, containing about 2 per cent of volatile matter, including eucalyptol, oil of pine, menthol and camphor. The claims on the trade package, to the effect that it was a remedy for catarrh, hay fever, throat ailments, nasal affections, etc., were declared false and fraudulent, and in July, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16782; issued May, 1930.*]

Laxacold.—The Nyal Company, Detroit, Mich., in January, 1929, shipped into Illinois a quantity of Laxacold that was declared misbranded. The Laxacold tablets were found to contain acetanilide, alkaloids of aconite and of cinchona, extracts of plant drugs, including podophyllum and jalap, with camphor, red pepper, sulphates, and a small amount of salicylates. The claims on the trade package, that the product would quickly relieve grippe, flu and neuralgia, were declared false and fraudulent, while the statement on the package, that the tablets were safe, was declared false and misleading. In April, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16784; issued May, 1930.*]

Nyal Cold Capsules.—The Nyal Company of Detroit, Mich., shipped in September, 1928, into Illinois a quantity of Nyal Cold Capsules that were declared misbranded. The government chemists reported that the capsules contained acetanilide, chalk, cinchonine sulphate, and small amounts of red pepper, camphor, podophyllin, and the alkaloids of aconite. The claims on the trade package, that these capsules were a remedy for influenza, neuralgia, etc., were declared false and fraudulent, and the statement that the capsules were safe was declared false and misleading. In April, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16785; issued May, 1930.*]

Diemer's Laxative Grip and Cold Tablets.—The Sta-Wel Remedy Company, Springfield, Mo., shipped in November, 1928, into Illinois a quantity of Dr. F. W. Diemer's Laxative Grip and Cold Tablets that were declared misbranded. The tablets were found to contain acetanilide, baking soda, red pepper and some laxative drugs. The claim that the tablets were a remedy for influenza was declared false and fraudulent and in April, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed. —[*Notice of Judgment 16786; issued May, 1930.*]

Reno's Antiseptic Wash.—S. B. Leonardi and Company, New Rochelle, N. Y., shipped in May, 1928, to California a quantity of Reno's Antiseptic Wash that was declared adulterated and misbranded. The stuff was found to consist essentially of water (99 per cent) and small amounts of boric acid, camphor, and a trace of alkaloids. The federal authorities reported: "Bacteriological examination showed that the product was not antiseptic." The product was declared adulterated because it was sold as an antiseptic when it was not, and therefore fell below such professed standard. The claims that it was a remedy for leucorrhea, or "whites," and all discharges due to inflammation of the vaginal mucous membrane, were declared false and fraudulent. In August, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16788; issued May, 1930.*]

Devel's Grippe.—The Devel's Chemical Company, Sylvester, Ga., shipped in January, 1929, into Florida a quantity of Devel's Grippe, which was declared misbranded. Analysis showed the product to consist essentially of extracts of plant drugs, including licorice and a laxative plant drug, with saccharine and volatile oils, including oil of anise, in a solution of alcohol and water. The claims that the product was a remedy for influenza, cough, fever, bronchitis, lumbago, neuralgia, and various other conditions, were declared false and fraudulent, and in September, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16789; issued May, 1930.*]

Dionol.—The Dionol Company, Detroit, Mich., shipped into the District of Columbia in January, 1929, a quantity of Dionol that was declared misbranded. Government chemists reported that analysis showed the product to consist of white petrolatum! The curative claims for the preparation in such conditions as hemorrhoids, throat and lung diseases, infected wounds, pelvic congestion, etc., were declared false and fraudulent, and in August, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16794; issued May, 1930.*]

[Dionol was the subject of brief reports in this department of The Journal, Jan. 26, 1918, and Feb. 7, 1920. The product was there declared to be a glorified and esoteric form of petrolatum.]

Correspondence

PRIORITY IN TREATMENT METHOD OF BROMIDE INTOXICATION

To the Editor:—In The Journal, July 12, Harris and Hauser published their paper on "Bromide Intoxication," in which success therapeutically depended on the replacement of bromine ions by chlorine ions; in this connection may I direct credit for originality where, I believe, credit is due.

The principle that the excretion of chlorides could be hastened by the administration of bromides and iodides, and that, conversely, the administration of chlorides hastens the elimination of the other two, was developed as far back as 1902 and 1911 (Sollmann: Manual of Pharmacology). Credit for the application of this biologic fact to therapeutics belongs, however, to the dermatologists Wile, Wright and Smith (*Arch. Dermat. & Syph.* **6**:529 [Nov.] 1922). A second report by Wile (*Arch. Dermat. & Syph.* **8**:407 [Sept.] 1923) in 1923 included the treatment of bromide intoxication as well as bromide dermatoses. Later, Stevenson (*Arch. Dermat. & Syph.* **12**:525 [Oct.] 1925) elaborated on the original work of Wile and his associates. Harris and Hauser failed to mention the work of Wile, Wright and Smith, and of Stevenson.

Furthermore, and apart from Harris and Hauser's report, the technic of Belote for the detection of bromides in the body fluids also deserves remention in connection with Wuth's paper (The Journal, June 25, 1927, p. 2013). It is a most simple test, involving the color change induced by bromine whereby the yellow of fluorescein paper becomes the pink of eosin (Belote: The Journal, May 28, 1927, p. 1696).

Without mention of these authors, the credit for an important and even life-saving method of treatment might be permanently lost.

Fred D. Weidman, M.D., Philadelphia.

VIOSTEROL IN RICKETS

To the Editor:—I am much interested in your editorial comment in The Journal, September 13, on "Vitamin A in Disease." Toward the end of the editorial appears this statement: "Recently viosterol has come into vogue in the treatment and prevention of rickets. Because of its high vitamin D content it should be more valuable than cod liver oil, but in certain cases cod liver oil has seemed to be more curative than viosterol." Some research work that we have done at this institution with irradiated ergosterol as an antirachitic for chickens indicates clearly that the standard established for this product by the Council on Pharmacy and Chemistry of the American Medical Association is entirely out of line with the real antirachitic value of this product. We have fed irradiated ergosterol, or viosterol, in amounts theoretically equivalent to 2, 4, 6, 20, 50, 100 and 200 per cent of cod liver oil, and not until the last mentioned amount was included in the ration were we able to prevent rickets in chickens. As a matter of fact, even the lot receiving the theoretical equivalent of 200 per cent of cod liver oil in the form of viosterol was subnormal in bone ash and in bone structure as compared with the control lot which received 2 per cent of cod liver oil.

May I suggest that some of the early investigations with irradiated ergosterol may have resulted in faulty conclusions because rats were used as the experimental animals. Rats, of all animals available for rickets work, appear to be least desirable because the species has been evoluting in dark and shadowy environments for a million years or more, and consequently the type with the lowest ultraviolet or D requirement has been evolved. The fact that thousands of rats were used in various vitamin research experiments before the D factor was discovered indicates that rats have an extremely low requirement for this factor. Birds, on the other hand, have a relatively high D requirement because of their evolutionary background. We do not suggest that birds are exactly the ideal type for D research work, but do feel that faulty conclusions are being reached through the use of rats for this particular type of experimentation.

So far as we can determine from a review of the literature, there are no data from experiments with human beings that would conclusively indicate that the Council on Pharmacy and Chemistry standards for viosterol are correct.

F. E. Mussehl, Lincoln, Neb.
Chairman, Poultry Husbandry Department,
College of Agriculture.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

MEDICAL AND ETHICAL ASPECTS OF STERILIZATION

To the Editor:—I am engaged in medical missionary work in a thickly inhabited district of China. Part of my time is spent at a foundling asylum. As is well known, China is overpopulated and the birth rate is high. *There is little knowledge of birth control, and abortion is comparatively uncommon.* Two factors that offset to some extent this situation are high infant mortality and the refusal on the part of many families to rear their babies. The first is intolerable from a medical standpoint. The second is intolerable from a moral point of view My questions, then, are: 1. Has modern gynecology any fairly reliable surgical procedure for sterilizing women which is practicable by an ordinarily trained surgeon? 2. Does such a procedure have any deleterious effect on the personality and sex life of a woman? 3. What, in your opinion, would be the attitude of reasonable and ethical medical men toward such a proposition as this: That any woman who has four living children may apply to a hospital and have the sterilizing procedure carried out if her health permits, with no embarrassing insinuations made, and at a minimum of expense—possibly paid by the state?

George Thorngate, M.D., Liuho, Kiangsu, China.

Answer.—1. There are a number of fairly reliable surgical procedures for sterilizing women, but not one of them is absolutely dependable except removal of all ovarian tissue. The roentgen rays and radium may also be used to produce sterility, but they have the disadvantage of bringing about an artificial menopause. The simplest surgical treatment is that recommended by R. L. Dickinson; namely, occlusion of the tubal openings inside the uterine cavity by means of an electric cautery. This method, however, is not much used. Among the intra-abdominal procedures the one most commonly employed is the following: A ligature is placed around the tube about 2 cm. from the uterine cornu. The uterocornual junction is excised, the proximal end of the tube is buried within the folds of the broad ligament, and the cornu of the uterus is sutured and covered with peritoneum. The same procedure is carried out on the opposite side. A much simpler and just as effective method is the Madlener operation, which consists of elevating the midportion of each tube, gently but firmly crushing it with a smooth clamp, and placing a heavy silk ligature in the groove produced by the clamp. This method is simple, bloodless and quickly performed and is especially useful when sterilization is necessary at the time a cesarean section or hysterotomy is performed.

2. Sterilization operations performed on the tubes have no effect on the personality or sex life of the individual. If the patient is not informed of what has been done, she will have no subjective or objective indications that she has been sterilized other than that she cannot conceive.

3. This question is a complex one and should be answered by sociologists, not by medical men. On purely medical grounds there is no reason to refuse such a request, although at the present time the usual indication for sterilization is just the reverse of the one mentioned. Practically the only time sterilization is now carried out is for some serious medical ailment. An exception to this is the woman who has had a number of cesarean sections. Undoubtedly if such a proposition were made to medical men, many of them would oppose it because of religious beliefs.

OBESITY AND GLYCOSURIA

To the Editor:—A man, aged 54, obese, weighing about 280 pounds (127 Kg.), and about 5 feet 6½ inches (167.7 cm.) tall, has had a constant glycosuria for the past three years. Previous to this, it was an *intermittent one. His blood sugar was 210 mg.* per hundred cubic centimeters of blood about three years ago. Several weeks ago his blood sugar was 360 mg. A quantitative examination of the sugar in the urine showed about 5.5 per cent sugar. No acetone or diacetic acid was found in the urine. The patient's weight is constant and has not diminished for the past seven years. He has symptoms that point to a nerve involvement and has numbness of the feet, especially the heels. He also complains of indefinite pain in the epigastrium. Will you kindly state whether insulin is indicated and how much in this case because of the high percentage of sugar in the urine and the high sugar content of the blood? The patient has been on a diet all this while which, however, is not sufficient to control the glycosuria. What is the likely cause of this pain in the abdomen? It has no relationship to meals, coming on at irregular times. The patient is a clerical man. Kindly omit name.

M.D., Wisconsin.

Answer.—Analysis of this story makes it seem highly probable that unless a diet is instituted which will result in the patient losing considerable weight there is little chance of reducing either his glycosuria or his hyperglycemia. The experience with patients of this type suggests, as Joslin has so frequently pointed out, is that the obesity is a precursor to the diabetes; and a man of these dimensions is certainly tremendously overweight. It is also true that many patients of this type who claim to be on a diet actually are *not*, for the diet in such a patient must be low in calories as well as in carbohydrate.

The description of the various pains suggests diabetic neuritis. It does not seem wise to use insulin at the present time for a simple reason: Insulin will result in the utilization of more food, and therefore an increase in weight. A vicious circle is thus established. Perhaps under careful dietary control the patient will become sugar free but, if not, it might be wise to reduce his fat intake tremendously and give him small doses of insulin to assist in the utilization of what carbohydrates are necessary. This type of diet has been described by Evans and Strang.

DIET RESTRICTIONS WITH MILD MERCUROUS CHLORIDE (CALOMEL)

To the Editor.—Please express the present-day thought as to dietary restrictions applying to a patient taking calomel, with particular reference to fruit and vegetable acids, and to milk. Kindly omit name.

M.D., West Virginia.

Answer.—There is no scientific reason for dietary restriction or avoidance of acid fruits in connection with the use of mild mercurous chloride.

EFFECTS OF SODIUM NITRATE IN POWDER MANUFACTURE

To the Editor:—We (Apache Powder Company) are interested in the literature on the subject of the untoward effects of prolonged exposure to sodium nitrate in the manufacture of powder. We have an employee who has worked in the nitrate for the most of his eleven years' employment and who has low blood pressure, low *hemoglobin* and low basal metabolism alleged to be due to exposure to sodium nitrate. However, he has also Argyll Robertson pupils, diminished knee jerks, ataxic gait and positive *Romberg sign*, which suggests tabes; but the blood and spinal fluid Wassermann, Kahn and serum globulin reactions and the colloidal gold curve are all negative. Therefore we are interested to know what, if anything, has been written on the effect of exposure to sodium nitrate on man, and will appreciate any information you may supply as to where we can find reference to such literature.

R. C. Kirkwood, M.D., Benson, Ariz.

Answer.—For generations nitrates have been manipulated by workers, in the manufacture of explosives, without having attracted the attention of industrial hygienists or toxicologists as a source of harm. The inference is that these substances are not frequent causes of significant harm to workmen. Opinions as to sodium nitrate toxicity are largely based on its chemical similarity to potassium nitrate, more being known about the toxic properties of the latter. Acute poisonings from accidental ingestion of nitrates are well known. This phase is well covered by Peterson, Haines and Webster in their textbook "Legal Medicine and Toxicology" (Philadelphia, W. B. Saunders Company, 1923). A fatal case of nitrate poisoning was described in The Journal by Windmueller (Sept. 10, 1921, p. 858). Additional data may be derived from Sollmann's "Manual of Pharmacology" (Philadelphia, W. B. Saunders Company, 1927) and Solis-Cohen's "Pharmaco-Therapeutics" (New York, D. Appleton & Co, 1928).

From all sources it seems likely that nitrates are changed to nitrites to some extent in the body, and that bodily responses are in part characteristic of the latter. Lowered blood pressures, anemia and subnormal metabolic rates have been described. Diuresis, gastro-enteritis, myalgias, partial blindness and tachycardia likewise have been observed. Windmueller's patient presented manifestations quite dissimilar to those indicated in this query.

AUFRECHT'S METHOD OF TREATING PNEUMONIA

To the Editor:—May I have details of Aufrecht's method of the treatment of pneumonia by means of injections of quinine?

J. C. Parham, M.D., Port au Prince, Haiti.

Answer.—Aufrecht said in a recent article that the prescription he uses consists of 2 Gm. of quinine hydrochloride, 1 Gm. of urethane (ethyl carbamide), and 20 Gm. of distilled water. The urethane permits the dissolving of the quinine hydrochloride in a small quantity of water. When this mixture is used, 0.5 Gm. of quinine hydrochloride can be administered in 5 Gm. of fluid. The usual number of injections required is two or three, given at twelve or twenty-four hour intervals. The best site for the injections, Aufrecht said, are the lateral abdominal walls. If the injection is made carefully and the needle removed slowly by pressing a cotton compress on the skin around the puncture, there is no bleeding and the injected fluid spreads easily in the loose tissue. When the distilled water is too cold, the quinine precipitates, but it can be dissolved again if the container is placed in a warm water bath. Aufrecht employed quinine therapy only in lobar pneumonia and not in bronchopneumonia or pneumonia due to the Friedländer bacillus. All his patients were adults. In several hundred cases treated he did not note any complications. Aufrecht injected the quinine subcutaneously. Berger reports favorable results with injections intramuscularly into the extensor muscles of the thigh. Although quinine has been used in the treatment of pneumonia, its value has not yet been fully demonstrated; furthermore, all recent work seems to show that intramuscular injections are absorbed less efficiently than oral.

THE ANOPHELES AND MALARIA

To the Editor:—In the past, malarial infection was said to be carried by the anopheles mosquito. Recently in Lake County, Ind., there have been reported various cases of malaria. Is there any recent report that malaria may be transmitted by other mosquitoes besides anopheles?

B. B. Reeve, M.D., Whiting, Ind.

Answer.—It is accepted as almost a truism that human malaria can be transmitted only by anophelene mosquitoes. Certainly there is an enormous literature proving the importance of anophelenes and there are no recent reports giving any valid evidence that mosquitoes, other than anophelenes, can carry the disease. The fact that anophelenes are so important has served to lessen interest in the culicine species and as a consequence there is little carefully controlled experimental work showing that the culicine species cannot be infected with human malaria.

The recent work of C. G. Huff on avian malaria (which is generally carried by culicine species) is interesting in this connection (*Ann. Trop Med.* **23**:427 [Dec.] 1929). He finds that the susceptibility of mosquitoes to malaria is not solely a species characteristic but is largely an individual idiosyncrasy determined by heredity. This probably will help to explain why a given species of anopheles may be a dangerous carrier in one locality and not in another. Huff also believes that it is likely that if a large number of culicines were fed on infected human beings a few would become infected. All of this is highly speculative and must await further experimental work.

ANNULUS OF VIEUSSENS

To the Editor:—What is the "annulus of Vieussens" that Sutton and Lueth removed so often? My dictionary defines it as the same as "annulus ovalis," which is the "margin of the septum of the foramen ovale of the fetal heart." I don't see how they could have gotten away with the resection of that or how it would have given the results they obtained from its extirpation.

L. M Blackford, M.D , Atlanta.

Answer.—The ansa subclava of Vieussens is the more anterior of two sympathetic nerve bundles connecting the middle and inferior cervical ganglions of the sympathetic on each side of the neck. This nerve bundle, instead of going directly from the middle to the inferior ganglion, extends downward in front of the subclavian artery, and turns backward beneath that artery and then upward behind it to join the inferior ganglion. On its course it usually gives off a middle cardiac nerve and a filament to the recurrent nerve as it extends upward from the vagus to the esophagus, trachea and larynx. The reason for the curious course of this bundle is that during development the subclavian artery on each side has moved caudad from its primary position in the front of the neck, descending in front of the inferior ganglion and thus producing an elongation of that bundle of nerve fibers connecting the two ganglions in front of it while the other bundle connecting the two ganglions behind it remains of the same length. This ansa, described by the French anatomist Vieussens about 1700 A. D., must not be confused with the ring of musculofibrous tissue (annulus ovalis Vieussenni) which surrounds the foramen ovale and the septum ovale of the heart, which he also described.

TREATMENT OF PARKINSONIAN DISEASE WITH STRAMONIUM

To the Editor:—I have been afflicted with parkinsonian disease for five years. I have taken scopolamine, 1/150 grain (0.4 mg.), three times a day; parathyroid, 1/10 grain (6 mg.) daily, also autocondensation, which seems to help a little. Can you suggest anything in the way of treatment; e. g., stramonium? My worst symptom is the tremor.

M.D., Oregon.

Answer.—Stramonium, perhaps more than scopolamine, does seem to have some effect in reducing the rigidity of the parkinsonian syndrome that follows epidemic encephalitis, though they have little effect on the tremor, as a rule, and are of little value in true Parkinson's disease or paralysis agitans. Nothing that has yet been discovered has much influence in most cases in this last condition.

SENSITIVITY TO HEAT AND COLD

To the Editor:—I have a case which is giving me, as well as others, a real workout: A man, aged 55, of rather spare build, well nourished, had gallbladder drainage several years ago. About three years ago he developed a skin condition which gives him real annoyance. It itches continually and on being scratched leaves small scabs. The patient can remain indoors for two weeks and it completely disappears, but when he goes out again in sun, wind and dust, it immediately reappears. He has been through several clinics without result. He has just come home from the University Hospital at Omaha after a stay of several weeks, during which no infection or organic trouble was found. The skin department diagnosed the trouble as eczema of the neurodermic type and put him on sodium thiosulphate, 1 Gm. intravenously every two weeks, and I am still giving this treatment. He has tried other treatment without results. If you can give me any pointers it will be greatly appreciated.

C. A. Miller, M.D., Thedford, Neb.

Answer.—It is quite possible that the case described is sensitive to heat or effort or to cold. The condition is described in the February issue of the *Archives of Internal Medicine* under the heading Heat and Effort Sensitiveness and Cold Sensitiveness. The patient can be tested objectively by exposing him to a large nitrogen lamp until his skin is hot and later to cold by rubbing him from head to foot rapidly with ice. If either heat or cold augments the itching, a positive diagnosis of heat or cold sensitiveness can be made. The case can probably be successfully treated through the repeated alternations of hot and cold application.

ABSORPTION OF DEXTROSE—HYPODERMOCLYSIS

To the Editor:—1. In The Journal, July 12, appeared the query "Is there any authoritative opinion on the rate of absorption and the change in blood sugar concentration following dextrose by rectum and by hypodermoclysis?" I wonder whether in making his reply the editor fully considered the article by McNealy and Willems (Surg. Gynec. Obst. **49**:794 [Dec.] 1929), wherein a plausible conclusion is reached that dextrose is not absorbed by the rectum or the colon. I would appreciate further opinion on this topic in that rectal feedings of dextrose are practiced so frequently and so much faith is held in their nutritional value. I myself am inclined to believe with McNealy and Willems. 2. There has been considerable discussion lately in our circle as to the wisdom of hypodermoclysis given in the thighs in preference to the subpectoral insertion. This area used almost exclusively by our group has temporarily been given up because of two instances of sloughing following the clysis, whereas sloughing following a subpectoral hypodermoclysis has never occurred I would appreciate your opinion in the matter both as to the region of choice and as to the probable explanation for the sloughing. At present we are considering three factors as probably responsible: (*a*) a hypertonic solution; (*b*) too rapid instillation; (*c*) too concentrated a solution of iodine in preparing the field. 3 Is there any contraindication for giving dextrose 5 per cent in physiologic solution of sodium chloride either as a hypodermoclysis or intravenously? Please omit name.

M.D., Connecticut.

Answer.—1. The observations of McNealy and Willems might well explain the generally contradictory evidence available from the literature. It may well be that those observers who secured evidence of absorption or of antiketonic action from rectal administration of dextrose employed a technic that forced the material past the ileocecal valve.

2. Injection in the thigh does not seem to be as well borne as injection into the looser and larger subcutaneous tissue

space of the front of the trunk. Infections, even with gas bacillus and tetanus, seem to occur with greater frequency in thigh injections than elsewhere. Possibly distention in this region interferes with local nutrition more than in the subpectoral region.

3. Dropsy, pulmonary edema and marked cardiac insufficiency are definite contraindications to voluminous subcutaneous or vein infusion.

FLUCTUATION IN SUGAR TOLERANCE

To the Editor:—A 60 year old patient of mine had to maintain a very strict diet to keep free from sugar. I was quite surprised to find that the urine was sugar free and that he had been eating "everything" and feeling fine after taking "Glucosin." Kindly give me your comments on the remedy mentioned. Please omit name and town.

M.D., New York.

Answer.—The proprietary preparation mentioned is probably without any value whatever. The result noted is evidently due to a natural fluctuation in sugar tolerance. An infection might have temporarily lowered the patient's sugar tolerance, which improved on his recovery from his infection. Profound emotional disturbance will temporarily lower sugar tolerance. On the other hand, suitable strict dieting may raise the sugar tolerance; and any remedy used afterward might erroneously be given credit for a result that had been achieved by the previous treatment.

ASPERMIA AND AZOOSPERMIA

To the Editor:—In Queries and Minor Notes (The Journal, August 30, p. 683) you use the term "aspermia" to designate the absence of sperma from the seminal secretion. In the case referred to, the semen was examined and no sperma found. The usual designation of this condition is "azoospermia," meaning the absence of sperma. "Aspermia" is used to signify an absence of ejaculation. It is true that the two terms are often used interchangeably to designate the absence of sperma from the semen, but both cannot be correct. Will you kindly explain your use of "aspermia"? Do you consider this the correct term, as against "azoospermia?" And if so, when would you use the latter term?

A. L. Wolbarst, M.D., New York.

Answer.—The editor erred in the title placed on the question referred to and also in the use of the term in the answer. General usage tends to confirm the point of view of Dr. Wolbarst to the effect that aspermia signifies an absence of ejaculation or deficient secretion of semen and that azoospermia indicates an absence of sperm and a lack of spermatozoa in the semen.

CARMINATIVE ACTION OF ONION

To the Editor:—Recently I have heard of, and in fact seen, the following "home remedy" used and apparently work as well as paregoric in preventing young infants from crying and fretting. Can you give me any explanation as to the mode of action, the vegetable compound involved, or any injurious results from giving infants a few drops of the following concoction: Slice an onion thin, place it in a glass dish and sprinkle a thin layer of vinegar over it. Leave for twenty-four hours, and give the resulting fluid in 2-3 drop doses. It makes a child sleep and seems to cause no trouble.

William C. Holt, M.D., Angleton, Texas.

Answer.—The effect observed is probably due to the carminative action which the onion is reputed to have.

DERMATITIS FROM TRINITROPHENOL

To the Editor:—Please inform me as to whether or not there is any specific treatment for the severe dermatitis that occasionally occurs following the use of trinitrophenol, alcohol solution, in abdominal preparation of surgical patients. In 2 cases out of approximately 500 there occurred a rash that spread till it finally covered the entire body, and even invaded the mucous surfaces. It is extremely distressing and does not subside for about ten to twelve days.

W. H. Bennett, M D., Lamesa, Texas.

Answer.—Trinitrophenol (picric acid) remaining at the point of original application may be removed from the skin by a paste of magnesium carbonate. Otherwise the dermatitis would have to be treated in accordance, with the recognized principles of dermatology.

INTRAVENOUS THERAPY

To the Editor:—Please advise me whether there is any advantage in giving cinchophen, sodium salicylate and sodium iodide intravenously instead of by mouth. Harry H. Bolton, Jr., M D., Pierce, W. Va.

Answer.—Unless special conditions make the intravenous route necessary, the intravenous administration of these drugs is not indicated.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

American Board for Ophthalmic Examinations: Chicago, Oct. 27, 1930. Sec., Dr. William H. Wilder, 122 So. Michigan Blvd., Chicago.

Arkansas: Little Rock, Nov. 3, 1930. Basic Science. Sec., Mr. Louis E. Gebauer, Little Rock, Ark. Eclectic Board, Little Rock, Nov. 11 and 12, 1930. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith, Ark. *Regular, Little Rock, Nov. 11-12, 1930. Sec., Dr. Sam J. Albright,* Searcy, Ark. Homeopathic, Eureka Springs, Nov. 11, 1930. Sec., Dr. Allison A. Pringle, Eureka Springs, Ark.

California: San Francisco and Los Angeles, Dec. 10, *1930.* Reciprocity examinations. Sec., Dr. C. B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

Connecticut: Regular, Hartford, Nov. 11 and 12, 1930. Sec., Dr. T. P. Murdock, 147 W. Main St., Meriden, Conn. *Homeopathic,* New Haven, Nov. 10, 1930. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

Florida: Jacksonville, Nov. 10-11, *1930.* Sec., *Dr. W. M. Rowlett,* P. O. Box 603, Tampa, Fla.

Kansas: Topeka, Dec. 9, 1930. Sec., Dr. A. S. Ross, Sabetha, Kan.

Maine: *Portland, Nov. 11-12, 1930.* Sec., *Dr. Adam P.* Leighton, 192 State St., Portland, Me.

Maryland: Regular, Baltimore, Dec. 9-12, 1930. Sec., Dr. H. M. Fitzhugh, 1211 Cathedral St., Baltimore, Md. Homeopathic, Baltimore, *Dec. 9, 1930.* Sec., *Dr. J. S. Garrison,* 517 Old Orchard Rd., Ten Hills, Baltimore, Md.

Massachusetts: Boston, Nov. 12-14, 1930. Sec., Dr. Frank M. Vaughan, 144 State House, Boston, Mass.

Nebraska. Lincoln, Nov. 20-22, 1930. Sec., Mr. Ernest M. Pollard, Lincoln, Neb.

Nevada: Carson City, Nov. *3-5, 1930.* Sec., Dr. Edward E. *Hamer,* Carson City, Nev.

Ohio: Columbus, Dec. 1-4, 1930. Sec., Dr. H. M. Platter, 85 E. Gay St., *Columbus, Ohio.*

South Carolina: Columbia, Nov. 11, 1930. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia, S. C.

Texas: Waco, Nov. 18-20, 1930. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas, Texas.

Virginia: Richmond, Dec. 9-12, 1930. Sec., Dr. *J.* W. Preston, 803 Medical Arts Bldg., Roanoke, Va.

West Virginia: Morgantown, Nov. 20, 1930. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

Wisconsin: Milwaukee, *Dec. 13, 1930. Basic Science.* Sec., Dr. R. N. Bauer, *3410* Wisconsin Ave., Milwaukee, Wis.

Maryland June Examination

Dr. Henry M. Fitzhugh, secretary of the Board of Medical Examiners of Maryland, reports the written examination held at Baltimore, June 17-20, 1930. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Eighty-eight candidates were examined, 87 of whom passed and 1 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
College of Medical		87.8
Yale University Sch		85.8
Georgetown Universi		75.2
George Washington		84.4, 87.5, 88, 89.6, 91.6, 91.8
University of Illinois College of Medicine	(1930)	89.3
Johns Hopkins University School of Medicine	(1924)	89.5, (1927) 87.1, (1928) 91.8, (1929) 80.1, 83.8, 85, 96.3, (1930) 80.3, 80.5, 81.5, 81.7, 82, 82.1, 82.6, 83, 83.2, 83.3, 84.6, 84.8, 85, 85.4, 86, 86.1, 86.6, 86.8, 88, 88.6, 89, 89, 89.2, 89.4, 89.7, 90.1, 90.5, 91.4, 91.8, 92.5
University of Maryland School of Medicine	(1926) 89, (1927)	89.5, (1929) 85.8, 90.6, 91.8, (1930) 84.2, 85.6, 86, 86.4 86.5, 87.2, 87.4, 87.5, 87.6, 88, 88.1, 88.3, 88.4, 89, 89.3, 89.6, 89.6, 89.7, 89.8, 90.5, 90.5, 90.6, 91.6, 91.8, 92, 92.2, 92.3, 92.6, 92.7, 93.5
Tufts College Medical School	(1928)	85.3
Jefferson Medical College	(1929) 91.3, (1930)	86.4
Temple University School of Medicine	(1929)	85.1

College FAILED	Year Grad.	Per Cent
University of Berlin Faculty of Medicine	(1922)	67.8*

Dr. Fitzhugh also reports 13 physicians licensed through reciprocity with other states and 1 by endorsement of National Board credentials. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists	(1928)	California
University of Colorado School of		Colorado
Georgetown University School of		st. Colum.
George Washington University Mc		st. Colum.
National University Medical Dept., Dist. Columbia	(1898)	Wisconsin
Emory University School of Medicine	(1928)	Georgia
University and Bellevue Hospital Medical College	(1900)	New Mexico
Jefferson Medical College	(1913)	Penna.
Medical College of Virginia	(1927)	Virginia
University of Virginia Department of Med...(1920)	(1927)	Virginia

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
University of Virginia Department of Medicine	(1924)	N. B. M. Ex.

* Verification of graduation in process.

Book Notices

TREATMENT IN GENERAL PRACTICE. By Harry Beckman, M.D., Professor of Pharmacology at Marquette University, Milwaukee. Cloth. Price, $10 net. Pp. 899. Philadelphia: W. B. Saunders Company, 1930.

Here in book form is the therapeutic index or scrap book that every general practitioner wishes he could prepare and keep for himself. The author has apparently stored in envelops, on cards or by some other indexing method references to most of the important articles on therapeutics that have appeared in medical publications in recent years. He has carefully abstracted and condensed this material and he has used sound editorial judgment in his choice of suggestions that are most worth while. The result is a book on therapeutics that is probably the most practical large book at present available. It is arranged according to diseases of infectious and parasitic causation, allergic disturbances and diseases of the various systems of the body. It includes also intoxications, a special section on burns, obstetrics and a number of miscellaneous subjects.

The material is in practical form for immediate application at the bedside. As with most extensive works of this character, it would seem that the author has distributed the space available occasionally with a desire for elaborateness rather than with a view to the most practical demand for material. The general practitioner will hardly require ten pages on the treatment of leprosy. He could probably use much more on the treatment of measles. He will certainly have little, if any, use for seven pages on plague, but twenty-five to thirty pages on pneumonia are well warranted. Dr. Beckman seems to be somewhat favorably inclined to the Rosenow serum in poliomyelitis, giving it much more space than is devoted to the use of convalescent serum, whereas the latter is much more generally preferred. The treatment of rheumatic fever is, no doubt, a most difficult one and certainly cannot be well handled in four pages. The section on syphilis is fully adequate.

An exceedingly valuable feature of the book is the use of historical and literary quotations preceding the main topics. The author does not hesitate to give exact directions for securing the materials and drugs recommended. Occasionally, his choice of authorities is not what it might be; thus, his section on obesity is taken practically verbatim from Sansum and disregards some of the most important recent contributions to the subject. The section on nervous indigestion is quoted almost wholly from the exceedingly fine contributions of Alvarez. Indeed, there are apparently some ten pages of this quotation. The author is also inclined to follow Alvarez in his treatment of peptic ulcer.

This volume is exactly what is stated in the preface, a collection of excellent abstracts and quotations from the best available literature. It was Josh Billings who said that wit represented a good memory and the ability to choose with judgment. In the same way the preparation of a work on therapeutics of this type represents an organized system for the collection of the best that appears in medical literature, and the ability to reproduce and develop this material in textbook form. In the time that has elapsed since its appearance, the book by Beckman has developed great popularity—a popularity warranted by its practical character and usefulness.

APHORISMES DE MÉDECINE CLINIQUE. Par le Baron Corvisart. Recueillis par F.-V. Mérat. Publiés par le Docteur Paul Busquet, bibliothecaire de l'Académie de médecine. Paper. Price, 20 francs Pp 115. Paris: Masson & Cie, 1929.

Corvisart, Napoleon's physician, was not a prolific writer. He is known especially because of his valuable volume on diseases of the heart, and because he translated and brought to the attention of the medical world Avenbrugger's treatise on percussion. Yet he was a leader and pioneer in clinical medicine in Paris, with a great influence on such men as Laennec through his emphasis on the importance of careful observation with necropsy control. He was a forceful teacher and was fond of epigrammatic statements. Many of these, collected by Mérat, chief of staff of the faculty of Paris, are now for the first time published, with comments, by Busquet. They are well worth reading. Some have naturally lost their point through later discoveries as to the nature of certain diseases, but many of his apothegms are as true today as they were a century ago. From his first to his last, number 324, the interest is maintained. The first: "Medicine is not the art of curing diseases; it is the art of treating them." The three hundred and twenty-fourth: "Purple digitalis, proposed as a remedy against phthisis and dropsy and especially as a drug for lessening the frequency of the pulse, has, in my experience, been successful only once in about seven trials. That was in a case in which it slowed the pulse."

THE NORMAL DIET: A SIMPLE STATEMENT OF THE FUNDAMENTAL PRINCIPLES OF DIET FOR THE MUTUAL USE OF PHYSICIANS AND PATIENTS. By W. D. Sansum, M.S., M.D., F.A.C.P., Director of the Potter Metabolic Clinic, Department of Metabolism, Santa Barbara Cottage Hospital, Santa Barbara, California. Third edition. Cloth. Price, $1.50. Pp. 134. St. Louis: C. V. Mosby Company, 1930.

The author of this work lives in California and he displays a strong preference for such products as oranges, lemons, grapefruit and beans. The book has been quoted extensively and pushed vigorously by the California Fruit Growers Exchange Campaign. The author believes that fully one half of the sickness that has come under his observation has been due, either directly or indirectly, to the elimination of the bulky foods from the diet. He states that the average constipated person requires approximately two pounds of the residue-containing foods daily to insure natural bowel movements and he has his office patients weigh and record the bulky foods. He considers acidosis from an overbalance of the acid-ash foods a great danger. He says: "The living body is always slightly alkaline. If the tissues of the body become acid to the slightest degree, death occurs, and serious illness results long before the alkalinity of the body is reduced to the neutral point. The more common symptoms of the acid-ash type of acidosis are malaise, lassitude, nausea and later vomiting, loss of appetite, headaches, weakness, sleeplessness, muscle aches, acid mouth, sour stomach, acid urine, acid sweat, 'sour disposition,' and, I believe, the blood vessel disease which is responsible for high blood pressure and such complications as partial blindness, heart disease, kidney disease, gangrene and apoplexy." He does not say just how acid the body must be to produce these symptoms but he does state that serious degrees of acidosis may be produced by eating too much bread and meat and that a urine which is acid enough to turn blue litmus paper to red is far too acid and a urine which is alkaline enough to change red litmus paper to blue is probably too alkaline.

The little book by its misstatements seems continually to twist truths to make them support the alkaline-ash, high-residue fad. For example, the author groups cascara, rhubarb, phenolphthalein and castor oil with "the concentrated vegetable and mineral irritants" which "act upon the inner lining of the stomach and bowel in the same manner as an irritating substance affects the eye which 'waters' when such a substance comes in contact with the conjunctiva. . . . And it is the 'tears' on a large scale which produce the copious, unnatural, watery bowel movements." His knowledge of the science of nutrition seems to be weak, for he speaks of proteins as the chief sources of muscular energy. Thus the woman shopper gets a headache long before noon because she does not eat a large breakfast. She has consumed her own fat and so much of her own protein that its acid-ash has caused an acidosis. Benedict's fasting artist, Levanzin, managed to starve for thirty-one days without increasing his protein metabolism above the normal level, but Sansum's shopper apparently could not last half a day. He makes another remarkable statement about a football game: "Whereas 3,500 calories per day is sufficient for a man doing average work, and 5,500 calories is the army ration, our college football players often use up 8,000 calories during the game. They enter such games without food or with a very light lunch. Their energy comes from the burning of their own lean meat, and the more muscular they are the more endurance they seem to have." It is a simple matter to calculate the result of such a football contest. Lean beef round furnishes 512 calories a pound and therefore Sansum's athlete would lose in the course of the game $15\frac{9}{10}$ pounds of muscle. He would have to eliminate approximately twenty times as much urea as the ordinary man does in a whole day and this would require about 5 or 10 pounds of urine over and above the amount of water furnished by the breakdown of this muscle tissue. Now Benedict and Joslin calculate that a football player in a hard game loses about 13 7/10 pounds of water through skin and lungs. This would make Sansum's man lose between 34 and 39 pounds of weight in the course of little over an hour. Sansum does not explain just why a football player expends from thirteen to fourteen times as much energy per hour as bicycle riders on a century run or swimmers or mountain climbers. A textbook of physiology would give him the figures and any good textbook written during the last two generations would tell him that physical exercise causes practically no increase in the protein metabolism.

The book is of some service in that it emphasizes the value of plenty of water in the treatment of fevers and demonstrates to the public the fact that orange juice and lemon juice act as alkalis when metabolized. On the whole, its biased point of view makes one doubt the extent to which it should be trusted.

Die Betrachtung und Betastung (Inspektion und Palpation) des Brustkorbs bei Lungenkranken. Klinische Untersuchungen uber diagnostisch wichtige Erscheinungen am Knochengerüst, an Muskeln und Haut, sowie am Nerven- und Gefasssystem des Brustkorbs, mit besonderer Berucksichtigung halbseitiger Veranderungen. Von Oberarzt Dr. J. E. Kayser-Petersen, leitendem Arzt der Tuberkulose-Fursogestelle fur den Stadtkreis an der medizinischen Universitats-Poliklinik. Paper. Price, 21 marks. Pp. 213, with 39 illustrations. Leipzig: Johann Ambrosius Barth, 1930.

Physicians are so accustomed in examining the chest for pulmonary disease to rely largely on percussion and auscultation, and the x-rays that they overlook the many aids furnished by inspection and palpation. It is enlightening to read such a book as this one and to see how much information is afforded by the use of the eyes and the fingers. Slight deformities, asymmetry, loss of motion, change of color, points of tenderness and change in muscle tension may be mentioned as examples, each with its possible significance as to underlying disease. There are several useful diagrams with brief case histories, together with the roentgen and auscultatory observations. The book is stimulating and timely. It will help call attention to the fact that careful physical examination is still of use and should not be displaced entirely by the laboratory or instrument of precision.

Diseases of the Urinary Tract in Children. By Edwin Beer, M.D., and Abraham Hyman, M.D. Cloth. Price, $6. Pp. 318, with 50 illustrations. New York: Paul B. Hoeber, Inc., 1930.

The authors base their work on twenty years' experience with diseases of the genito-urinary tract in children. The preliminary chapter is devoted to the symptomatology of genito-urinary disease in young life. The technic of cystoscopy and pyelo-ureterography is discussed in some detail. Intravenous pyelography by the use of sodium-2-oxo-5-iodo-pyridine-n-acetate is described and its advantages and indications are pointed out. The use of the Bucky diaphragm is not advised. Edwin Beer writes on enuresis in childhood. He emphasizes the need for a thorough examination in order to determine the etiologic factor. Hyman writes the important chapter on infections of the urinary tract (cystitis, pyelitis, pyelonephritis). He presents the most recent contributions to bacteriologic, experimental, surgical, cystoscopic and roentgenographic progress. He appropriately avers that "pyelitis" is a misnomer which covers a number of conditions, and that "pyuria" is more applicable until the true nature of the underlying lesion is understood. He observes that a large proportion of the chronic pyurias in children, formerly diagnosed as pyelitis, are secondary to urinary stasis due to a congenital anomaly. The author believes that too much emphasis has been placed on the hematogenous theory of kidney infection. He thinks that, of all the predisposing factors favoring infection, urinary stasis and a diminished resistance are the most important. An uncomplicated pyelitis seldom exists; accompanying lesions are found in the kidney in most necropsy specimens. The author notes that persistence of infection is due to lowered immunity, to a calculus in the kidney or ureter, to a persistent suppurative focus somewhere else in the body, or to a urinary stasis caused by a congenital anomaly. Edwin Beer discusses abscess and carbuncle of the kidney. He notes that in cases of cortical abscess in which the symptoms have subsided and diagnosis is difficult, activation of the focus by injecting *Staphylococcus aureus* vaccine in a dosage of from 100 million to 500 million acts as a provocative test and accentuates the clinical manifestations. He points out, as an important radiographic sign in the diagnosis of perinephric abscess, the obscuring of the outer border of the psoas muscle and *curvature of the spine to the opposite side.* Edwin Beer contributes a chapter on injuries of the kidney and ureter. He notes that the most striking symptoms are hematuria, local pain, local tumor and more or less shock with bleeding as shown by the fall in the hemoglobin of the blood. He advises that in *observing these cases of injury to the kidney* and ureter one should see every voided specimen of urine and use a rack of test tubes. It can thus be seen at a glance whether the bleeding is ceasing or continuing. Instrumentation may lead to infection and the author considers it contraindicated except when the diagnosis is in doubt. Beer writes the chapter on chronic tuberculosis of the kidney. He states that the all important examinations are urinary and cystoscopic. However, he cautions that in renal tuberculosis pyelography should be the diagnostic method of last resort. The resulting trauma may produce generalized tuberculosis. Hyman considers malignant tumors of the kidney and believes that the most frequent type is the mixed embryonic tumor. This monograph presents the essential clinical and special urologic data in a clear, practical manner. Each chapter is concluded by a group of illustrative case records and a special bibliography. There are numerous instructive roentgenographic reproductions. The volume should be valuable and interesting to pediatricians and urologists.

Le neurosi del cuore e dei vasi sanguigni e loro cura. Dal Prof. Giovanni Galli, docente di patologia medica speciale nella R. Università di Pavia. Paper. Price, 50 lire. Pp. 361, with 98 illustrations. Milan: Società Editrice Libraria, 1930.

Galli defines a neurosis as a disease situated in the smaller blood vessels with material lesions that are physical or chemical, as a rule entirely reparable, leaving no anatomic residue. A neurosis is in close relation with the psyche and gives rise to many subjective and objective manifestations that vary according to the organ or the part in which the circulatory disturbance takes place. All through the work while physical, chemical, toxic and other causes are recognized, the stress is laid on psychic influences. There is nearly as much discussion of psychology as of cardiology and neurology. The topics considered are such as tachycardia of various types, extrasystole, palpitation, the nervous heart, respiratory arrhythmia in the circulatory neuroses, hypotension and hypertension on a nervous basis, visceral vasomotor syndromes, vasomotor syndromes of the skin and joints, circulatory neuroses on a sexual basis, psychoanalysis and moral guidance. Not the least interesting and stimulating of his chapters are the earlier ones that are largely historical. The author rarely goes to extremes in his views. He seems possessed of plenty of common sense. Thus while recognizing the value of freudian psychoanalysis he makes it plain that he is not a "pansexualist." His therapy is likewise sound though with a greater faith in drugs than one would expect from his emphasis on the mental features of these neuroses. Galli is a loyal Italian. Exophthalmic goiter is with him Flajani's disease. He also refers to the Morgagni-Adams-Stokes syndrome. There are numerous figures showing polygraphic tracings but none showing electrocardiograms. A new font of type and a little more care in proofreading would have improved the looks of the pages. These, however, are minor criticisms. All in all the book is to be praised as a serious and helpful contribution to the better knowledge and handling of a group of ailments as yet none too well understood.

Burns: Types, Pathology and Management. By George T. Pack, B.S., M.D., and A. Hobson Davis, B.S., M.D., Instructor in Pathology, University of Alabama. Cloth. Price, $6. Pp. 364, with 60 illustrations. Philadelphia: J. B. Lippincott Company, 1930.

The authors of this volume are to be congratulated on the masterly manner in which the subject of burns is presented. This excellent treatise is not a mere compilation of data but *an amalgamation of a critical selection of the best in the literature* with the results of a wide clinical experience. The preface states: "In the preparation of this manuscript, we have included not only our personal experiences, but also a *free-analysis* of the contributions and opinions of other clinicians and investigators." The senior author was initiated into the management of burns by the incidence of a theater fire in New Haven in 1921 and since then has been associated with a second similar disaster and with the study of many individual cases. This experience has given to him an authority seldom encountered. The book is divided into three parts. Part one contains fundamental facts concerning burns and scalds. The historical aspects of the subject are presented together with a discussion of the etiology, incidence, classification, pathology and cause of death. In part two, consideration is given to the management of thermal burns. Particularly important is the chapter on the character of the immediate treatment of the burned patient and the emphasis laid on the necessity of systemic treatment. "It is the physician's duty to treat the patient as well as the burn and by supportive systemic therapy obviate any visceral mischief and malnourishment." Local treatment of the injury is given a duly prominent position and is discussed from many points of view. The relative merits of various procedures, such as wet dressings, water bath treatment, sunlight therapy and occlusive dressings (paraffin, oils, ointments and powders) are indicated. The technic of skin grafting, the diseases of cicatrices following burns and the prevention and correction of subsequent deformities are critically reviewed and preferred methods selected. In part three, regional burns by specific agents are discussed. This includes burns by such agents as electricity, lightning, roentgen rays, radium, the sun, caustic chemicals and the war gases. The final chapter presents the medicolegal aspects of burns and scalds. There are adequate references to the literature at the end of each chapter, and both subject and author indexes are given. The text is brief, clear cut and decisive. A perusal of this volume gives the feeling that in the present stage of knowledge little can be added to this presentation of burns and nothing can be deleted.

Allen's Commercial Organic Analysis. A Treatise on the Properties, Modes of Analysis, and Proximate Analytical Examination of the Various Organic Chemicals and Products Employed in the Arts, Manufactures, Medicine, etc. With Concise Methods for the Detection and Estimation of Their Impurities, Adulterations, and Products of Decomposition. Volume VIII: Glucosides, Non-Glucosidal Bitter Principles, Enzymes, Putrefaction Bases, Animal Bases, Animal Acids, the Cyanogen Compounds, the Proteins, the Digestion Products of Proteins. Edited by C. Ainsworth Mitchell, M.A., D.Sc., F.I.C. Fifth edition. Cloth. Price, $7.50. Pp. 761, with illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1930.

This volume has been entirely rearranged, revised and in some instances partially rewritten. The scope of the book is broad. It contains ten sections, which have been prepared by different authors or co-authors, except three, these being written by the same writer. The sections are on glucosides, nonglucosidal bitter principles, enzymes, putrefaction bases, animal bases, animal acids, the cyanogen compounds, the proteins, and the digestion products of the proteins. An excellent bibliography is given at the end of each section. The authors are to be commended, as the material is well chosen, maintaining the high character of the previous editions. The book should prove useful as a work of reference to the chemist in general and helpful to those working in the realm of laboratory medicine.

Naissance vie et mort des maladies infectieuses. Par Charles Nicolle, directeur de l'Institut Pasteur de Tunis. Paper. Price, 15 francs. Pp. 218. Paris: Felix Alcan, 1930.

Charles Nicolle is a great investigator in the field of infectious diseases. In 1928 he was awarded the Nobel prize in medicine for his work on typhus fever. He played a decisive part in the demonstration of the value of convalescent serum, notably in typhus. In this book, which is one of a series on various scientific subjects, are discussed fundamental questions of a general nature and of general interest concerning the evolution of infectious diseases. The preliminary chapter deals with the infectious microbes and their modes of action. Then follow chapters on (1) the life and characteristics of the infectious diseases as seen in the individual and in epidemics; (2) on the birth or development of infectious diseases, and (3) on the death or disappearance of these diseases as the result of the spontaneous workings of natural forces and of human efforts. The discussion is along rather broad lines. Facts, theories and speculations are presented lucidly without any undue claims of finality for the conclusions that are advanced tentatively. Contrary to the results of recent historical studies, the so-called American origin of syphilis is taken for granted without question. The book will interest educated persons and to physicians and medical workers it will be a stimulus toward a clearer understanding of infectious diseases in their broader biologic aspects.

Physiological Principles in Treatment. By W. Langdon Brown, M.A., M.D., F.R.C.P., Physician to St. Bartholomew's Hospital. With the collaboration of R. Hilton, M.A., M.B., M.R.C.P., Assistant Physician and Assistant Director of the Medical Unit, St. Bartholomew's Hospital. Cloth. Price, $3.75 net. Pp. 464. New York: William Wood & Company, 1930.

In this age of progressively accelerated progress, books of this kind are a necessity; and every practicing physician owes it to himself and his patients to keep his concepts on physiology from growing stale by reading a book like this once every few years. Even the young physician, out of medical school but a few years, will be surprised at the rapidity with which physiology is outgrowing his notions acquired in school. The perusal of this book makes one wish for the time to return when clinicians were teachers of physiology. Courses on pure physiology given by nonmedical men should be relegated to the premedical studies. A vigorous course on applied physiology should be an essential factor of every medical course worthy of its name: for the practice of medicine is largely applied physiology. In therapeutic suggestions, this book is a veritable gold mine. Here are a few of the nuggets: "The administration of thyroid extract diminishes the amount of bile salts in the urine with great relief of pruritus" in cases of jaundice. "In hematemesis . . . I place considerable reliance on half drachm doses of the 1:1,000 solution of adrenalin chloride in half an ounce of water every three to four hours. In addition to constricting the bleeding point it stops peristalsis." "It will often check vomiting or hiccup in doses of 10 to 15 minims of a 1:1,000 solution diluted with water. I have found this most useful in combination with 1 minim of carbolic acid and 3 minims of dilute hydrocyanic acid." "Corpus luteum hormone . . . inhibits ovarian secretion between oestra and particularly during pregnancy. . . . We have seen it successfully used in the prevention of habitual abortion." "In hypochlorhydria . . . the combined use of alkalis before meals, followed after meals by a good dose of dilute hydrochloric or nitrohydrochloric acid with nux vomica, has given me more satisfactory results than either separately. And we should not be niggardly; for even the full pharmacopeial dose of 20 minims would only confer an acidity of 0.02 per cent on a pint of fluid. . . . In complete achlorhydria up to a drachm of dilute hydrochloric acid in a half pint of lemonade or orangeade should be given during meals." "Fifteen grains of calcium lactate three times a day in water should control functional albuminuria." "Lactose in doses of from 2 to 4 drachms three times a day in hot water before meals often achives the same end as *Bacillus acidophilus* and may do away with the need for aperients. As to the selection of cases, the treatment can only be expected to be beneficial where there is definite evidence of increased putrefaction of proteins. The reaction of the feces will be a guide; if they are acid, this treatment is unsuitable; if they are alkaline at first, but yield a fair quantity of gas in the fermentation tube, showing an acid reaction after, the treatment will probably be unsuccessful. Good results can only be expected in cases where the fresh feces are alkaline and remain alkaline after twenty-four hours, yielding hardly any gas to the fermentation tube."

Die zentrale Abstimmung der Sehsphäre. Von Dr. Hans Hoff, *Abteilungsassistent der Klinik. Paper. Price, 7.50 marks. Pp. 96, with* 7 illustrations. Berlin: S. Karger, 1930.

This short brochure, which is number 54 of the Abhandlung aus der Neurologie, Psychiatrie, Psychologie und ihren Grenzgebieten, deals with clinical, experimental and deductive evidence of the influence of adjacent centers on the visual cortical region. There are ten chapters which vary from the influence of sleep on vision and vice versa to a consideration of the genesis of optical hallucinations. Seventeen cases are used to illustrate various points and, most remarkable to state, not once is there a dream analysis based on sex stuff. The deductions from the experimental work seem somewhat exaggerated to the clinician, for the analysis of subjective canine functions depends for the greatest extent on the analyzer and not the canine. Again, some of the analyses of the so-called visual field scotoma, lead an ophthalmologist to believe that the author would be a help in developing the account of a piscatorial excursion into the northern woods (vide page 28). The concluding chapter, which deals with the psychophysical variations in the functional regions of the occipital cortex, is well worth while.

Medicolegal

Lumbago or Sacro-Iliac Strain

(Taylor v. Southern Engineering Const. Co. (La.), 125 So. 877)

Taylor was working on a pile driver, in the construction of a bridge. He accidentally fell from 15 to 25 feet into the water, striking on his back, swam and waded out of the stream, and walked several hundred yards to the tent where he slept. He went home the following day, after doing a day's work. There he was confined to his bed for two weeks or more and partly confined there for three or four months. Prior to the fall, the patient had been engaged in heavy manual labor and had not complained of his back. After the accident and up to the time of the trial, nearly eighteen months, the patient worked only two days immediately following the accident and about five and one-half days on another job. He had to give up the latter work because it caused him so much pain.

The patient's employer, the Southern Engineering Construction Company, the defendant in this case, paid compensation under the employers' liability act from the date of the accident up to June 18, 1928, but paid nothing thereafter. The patient thereupon brought suit, claiming compensation for total disability. In the Eighth Judicial District Court, Parish of Grant, judgment was given in the patient's favor. His employer then appealed to the Court of Appeal of Louisiana, Second Circuit.

Dr. J. I. Peters, who examined the patient for the employer's insurer, testified in the course of the trial that in January, 1929, he was led by an examination of the patient and reports of inspectors to believe that the plaintiff was faking injury. He examined the patient again in June, 1929, assisted by Dr. D. C. McBride, and the roentgen ray showed no evidence of injury. If the patient was then suffering from pain, it was plainly caused by lumbago, "due to other pathological causes quite as much, if not more, than the injury." Dr. Peters based this conclusion on the roentgen examination, which showed an anomaly of the spine, together with the fact that the patient had sources of septic infection, diseased tonsils and teeth. The witness would not say that it was impossible for a patient to suffer a severe sprain of the sacro-iliac joint, sufficient to incapacitate him, without there being some bony injury, or some separation of bony relations, or some callus formation from bony injury, discoverable later by the roentgen ray, but he thought it improbable that such an injury could exist without some of these conditions being discoverable.

Dr. D. C. McBride, who assisted Dr. Peters in his second examination, in June, 1929, testified that the examination showed some stiffness in the lower part of the patient's back and that the patient complained of pain over the sacro-iliac region and the crest of the ilium. He manifested some difficulty in completely flexing or extending the thighs and was limited in flexion, extension and rotation of his spine. Dr. McBride concluded that the patient was suffering from some impairment in the sacro-iliac region, but he believed the trouble was due to absorption from some source of infection and that the plaintiff's teeth and tonsils could cause the trouble. He found no evidence of injury. The anomalous condition of the patient's vertebra may have exaggerated conditions. The fall may have been the beginning of the trouble, which the points of infection continued. It was probable that the patient's injury had something to do with his present condition. Any part that is injured, especially joints, tends to be a point of infection. Dr. McBride thought that the patient would be able to do hard manual labor, if his tonsils and teeth were removed.

Dr. Rand testified that the patient had a definite sacro-iliac strain; it would have been remarkable for the plaintiff to have described the symptoms if he had not had them. A roentgen examination would not necessarily show such an injury as the patient complained of, because of the peculiar, irregular-shaped joint; the plane between the sacrum and the ilium is not a flat surface but is curved. Dr. Rand had had patients in whom the roentgen ray indicated a normal condition, notwithstanding the fact that there was a strain of the sacro-iliac joint.

Dr. M. Cappel had examined the patient twice. The roentgen examination showed an abnormal formation of the sixth [sic] lumbar vertebra, and a back so formed was more susceptible to injury than a normal back. A person, Dr. Cappel testified, can sustain a severe injury to the muscles, ligaments and nerves of the back, without a roentgen examination showing it. He was positive that the patient was suffering from a sacro-iliac sprain. The patient, according to Dr. Cappel, was not suffering from bad tonsils or bad teeth. He was suffering from a disability that made it painful to perform manual labor.

The Court of Appeal pointed out that while Dr. Peters and Dr. McBride, who examined the patient on behalf of the employer's insurer, contended that the patient's trouble was due to his infected teeth and tonsils, they were not willing to say that the injury received by the patient when he fell was not a contributing factor to his present condition, and the court added:

> "The compensation paid injured workmen under the compensation staute is based upon disability and it is immaterial whether the injury alone, or in conjunction with a latent systemic infection, caused the disability."—*Womack v. New Orleans Public Service, Inc., 5 La. App. 71.*

Dr. Peters and Dr. Meyers and other doctors who testified for the employer, said the Court of Appeal, contended that a sprain as severe as the one claimed by the plaintiff almost always causes a widening of the bony relation, or other bony injury, that will be shown by the roentgen ray. But Dr. Cappel and other physicians who testified for the patient denied that statement and cited cases they had treated in which the injury of the sacro-iliac joint was so severe as to cause total disability for several years and in which the roentgen ray showed nothing. Positive testimony will prevail over negative. When a physician, testifying as a medical expert, gives his professional *opinion to the effect that a sprain of the sacro-iliac joint, severe enough to cause total disability, will not necessarily* cause a widening of the bony relations or other bone injury sufficient to show in roentgenograms and declares that he is treating numerous cases of that kind in which nothing is shown by the roentgen ray, his testimony must prevail over that of another medical expert who expresses the opinion that such a sprain will always show in the roentgen picture.

The patient in this case, concluded the Court of Appeal, is a man of average ability and learning. He has never performed any work other than manual labor and is totally disabled for such work. He therefore comes under the total disability clause of the workmen's compensation law. The judgment of the district court was therefore amended by increasing the amount allowed the patient so as to compensate him on the basis of total disability, and the judgment as thus amended was affirmed.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, October 27-31. Dr. W. P. Wherry, Medical Arts Building, Omaha, Secretary.

American Academy of Physical Therapy, Boston, November 12-14. Dr. Thomas L. Smyth, 111 North Eighth Street, Allentown, Pa., Secretary.

American Association of Railway Surgeons, Chicago, November 5-7. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American Public Health Association, Fort Worth, Texas, October 27-31. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

Central States Pediatric Society, Memphis, Tenn., November 7-8. Dr. A. H. Parmelee, 310 South Michigan Boulevard, Chicago, Secretary.

Medical and Surgical Association of the Southwest, El Paso, Texas, November 6-8. Dr. W. Warner Watkins, Box 1587, Phoenix, Ariz., Secretary.

Radiological Society of North America, Los Angeles, December 1-5. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Southern Medical Association, Louisville, Ky., November 11-14. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Southern Surgical Association, Lexington, Ky., December 9-12. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Surgical Association, Kansas City, Mo., December 5-6. Dr. Frank R. Teachenor, 306 E. Twelfth St., Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Medical Sciences, Philadelphia

180: 305-452 (Sept.) 1930

*Etiologic Relationship of Achylia Gastrica to Pernicious Anemia. W. B. Castle, W. C. Townsend and C. W. Heath, Boston.—p. 305.
*Normal Filament and Nonfilament Polymorphonuclear Neutrophil Count: Practical Value as Diagnostic Aid. D. L. Farley, H. St. Clair and J. A. Reisinger, Philadelphia.—p. 336.
*Diagnosis of Pneumococcus Peritonitis from Blood Picture. C. L. Gibson, New York.—p. 344.
*Digitalis Therapy in Lobar Pneumonia. W. L. Niles and J. Wyckoff, New York.—p. 348.
*Barium Chloride in Stokes-Adams Syndrome of Complete Heart Block. A. E. Parsonnet, Newark, N. J., and A. S. Hyman, New York.—p. 356.
*Uninfected Mural Thrombi of Heart. E. A. Harvey and S. A. Levine, Boston.—p. 365.
Flarimeter Tests of Circulatory Fitness. L. F. MacKenzie, P. V. Wells, E. G. Dewis and L. S. Ylvisaker, Newark, N. J.—p. 372.
*Production of Hypertrophic Arthritis by Interference with Blood Supply. A. D. Goldhaft, L. M. Wright and R. Pemberton, Philadelphia.—p. 386.
*Subphrenic Abscess. Gatewood, Chicago.—p. 398.
*Remote Symptoms of Unrecognized Thyroid Adenomata. P. K. Gilman and W. E. Kay, San Francisco.—p. 405.
*Anorexia Nervosa, Anorexia, Inanition and Low Basal Metabolic Rate. J. M. Berkman, Rochester, Minn.—p. 411.

Relationship of Achylia Gastrica to Pernicious Anemia.—Experiments were performed by Castle et al. to test the validity of the hypothesis that the genesis of the disease pernicious anemia is dependent on an inadequate gastric digestion of protein, thus permitting the development of a virtual deficiency in the presence of a diet adequate for the normal individual. They conclude that the active constituent (intrinsic factor) of the normal human fasting gastric contents is in all probability secreted by the mucosa of the stomach and is not detectably present in normal saliva or duodenal contents free from gastric juice, or in the secretions of any portion of the gastro-intestinal tract of the patient having pernicious anemia. This substance is probably organic, thermolabile, possibly an enzyme, capable of interaction with protein (extrinsic factor) or closely related substances in neutral solution, resulting in the production of material having, when administered to patients with pernicious anemia, a marked hematopoietic effect. If an enzyme, it is certainly not pepsin; its properties as so far determined are only in certain respects similar to those of rennin. The lack of this particular property (intrinsic factor) of the gastric contents in pernicious anemia is probably the essential defect leading to the development of the disease, through a failure of the normal reaction, occurring in these experiments with beef muscle proteins (extrinsic factor, and normal human gastric juice. It is also concluded that the existing tests for hydrochloric acid and pepsin of the gastric juice are not necessarily of value in determining the presence or absence of the intrinsic factor essential to the reactions between normal human gastric juice and beef muscle described in these papers.

Normal Filament and Nonfilament Polymorphonuclear Neutrophil Count.—Farley et al. are of the opinion that the most delicate method of studying the reaction of the bone marrow in infections of all types is the estimation of the young forms of polymorphonuclear neutrophils. This is in agreement with others. It is especially valuable in the diagnosis of cryptic infections of subacute or chronic types in which there is no increase in the total leukocyte count. It may add additional presumptive evidence in cases of malingering and hysteria masquerading as organic disease. Its value in prognosis is yet to be established. In profoundly toxic cases with a normal total count or a leukopenia, the agonized efforts of the bone marrow can be determined only by study of the character of the nucleus of the leukocyte. Their method is the differentiation of 100 consecutive leukocytes to determine thus the percentage of nonfilament neutrophils, filament neutrophils, lymphocytes, monocytes, eosinophils and basophils, in which Cooke's criterion is used to separate the polymorphonuclear neutrophils into old and young groups. This method is recommended especially for routine clinical examinations and not in competition with the more complex methods available to expert hematologists. The authors have found by this method that the upper limit of a normal young polymorphonuclear leukocyte (nonfilament) count is in the neighborhood of 16 per cent of cells. The average count in 190 presumably normal adults was approximately 8 per cent. An increased percentage of young polymorphonuclear leukocytes may indicate the existence of infection, even though the total number of leukocytes is not increased.

Diagnosis of Pneumococcus Peritonitis from Blood Picture.—In pneumococcic peritonitis, Gibson regards the characteristic picture of an extraordinarily high leukocyte count with high percentage of polymorphonuclears as a valuable point in differential diagnosis from appendical and other nonpneumococcic forms of peritonitis.

Digitalis Therapy in Lobar Pneumonia.—Two years of observation in hundreds of cases has convinced Niles and Wyckoff that the results obtained do not justify continuing the routine administration of digitalis to patients suffering with lobar pneumonia.

Barium Chloride in Stokes-Adams Syndrome of Complete Heart Block.—Parsonnet and Hyman report on their experiences with barium chloride in doses of from 0.04 to 0.6 Gm. daily in eight cases of auricular and ventricular dissociation exhibiting the Stokes-Adams syndrome. In no case did the barium exert any influence, either good or bad, on the frequency or severity of the seizures, nor was the progress of the myocardial changes altered. In one case barium was administered 126 days and in no case less than 40 days. The total amount of barium taken all together varied from 9.6 to 40.32 Gm.

Uninfected Mural Thrombi of Heart.—Harvey and Levine reviewed 2,091 necropsy records. The incidence of thrombi of the heart was found to be approximately 5.3 per cent, or 111 instances. The frequency of thrombi was slightly greater in the auricles than in the ventricles. The two most common sites of thrombus formation were the tip of the left ventricle and the right auricular appendix. This was true for both isolated and multiple thrombi. Thrombi were found to be slightly more frequent on the left side of the heart than on the right (87 to 72). In analyzing the condition in the auricles and the ventricles separately, however, there was a great predominance in the right auricle as compared to the left (60 to 28) and in the left ventricle as compared to the right (59 to 12). It is apparent from a study of the pathologic finding in these cases that the sequence of coronary artery disease, cardiac infarction and mural thrombosis of the ventricles is the most common mechanism of the production of thrombi in the chambers of the heart. Cardiac mural thrombi were twice as frequent in males as in females. The majority of these patients died between the ages of 40 and 70 years. The patients with ventricular thrombi following cardiac infarction formed the oldest age group (62 years). There was a large middle-aged group with valvular disease (45 years). Secondary infarction outside the heart as a result of emboli occurred with the following frequency: pulmonary, 47; renal, 18; splenic, 12; cerebral, 3 (the brain was examined in only a limited number of instances). There were six instances of peripheral arterial thrombosis that may have been embolic. Auricular fibrillation definitely increases the incidence of auricular thrombosis. The two most frequent mechanisms for the formation of cardiac mural thrombi are the myocardial degeneration associated with coronary arterial disease and the improper functioning of the auricles leading to blood stasis. The diagnosis of cardiac mural thrombosis presents difficulties but should be suspected in cases of coronary thrombosis and chronic valvular disease showing evidence of emboli.

Production of Hypertrophic Arthritis by Interference with Blood Supply.—Experiments are reported by Goldhaft et al. in which the phenomena of arthritis, chiefly of the hypertrophic variety, are brought about in the region of the patella of dogs by ligation of the blood supply to the patella. Control experiments in which an amount of silk ligature equal to that used in the original experiments was placed around the patella, following on an otherwise essentially identical operation, failed to produce any overgrowth after a comparable lapse of time. Analyses of the overgrowth and of the original patella giving rise to the overgrowth show that the percentage magnesium content in these tissues is higher than on the control side. The involvement of the mineral metabolism in the region affected is thus clearly indicated. These experiments are in entire consonance with those arrived at, following a different line of reasoning, by Wollenberg and indicate beyond any reasonable doubt that disturbance of the blood supply must henceforth be regarded as one of the factors capable of producing arthritic change. Taken in conjunction with other work, these experiments afford strong evidence that interference with the blood supply, probably in the nature of vasoconstriction, constitutes at least a part, probably a large part, of the underlying physiologic disturbance productive of the phenomena of chronic arthritis, especially the hypertrophic type as encountered in human beings.

Subphrenic Abscess.—A review of the literature by Gatewood and of forty-one cases observed in the Presbyterian Hospital during the past ten years shows that the mortality in subphrenic abscess is still much too high, being 30 per cent or more. In spite of improved diagnosis methods and earlier operation, acute appendicitis ranks high as an etiologic factor—second in this series. The importance of prophylactic treatment cannot be overemphasized. Early diagnosis of appendical and other contributory causes and their prompt elimination will prevent the formation of many subphrenic abscesses. Adequate drainage and the adoption of the semisitting posture in all lower abdominal infections are two most important preventive measures that should not be forgotten. Finally, attention is again called to the failure to consider the likelihood of subphrenic abscess in any patient not doing well after an abdominal operation, even though performed months previously.

Remote Symptoms of Unrecognized Thyroid Adenomas.—In the thirteen cases reported by Gilman and Kay, the classic signs of thyroid toxicity were for the most part absent. Furthermore, the basal metabolic rate in each instance was either normal or below normal. In many instances the patients were more or less indefinite in their complaints but were unanimous in stating that they did not feel well and knew that something was definitely wrong. Their symptoms largely directed attention away from the thyroid gland and suggested trouble with systems elsewhere in the body. Nervousness was the most frequent symptom. This nervousness was not suggestive of the type usually seen in thyrotoxicosis. It was in the nature of a nervous tension and sense of apprehension, associated with a feeling of carrying too heavy a load. As a rule this symptom was brought out only after careful questioning, thus differing from the objective nervousness usual in hyperthyroidism. Several of these patients had been classified as psychoneurotic, chiefly of the neurasthenic type. Weakness, fatigability and palpitation were common symptoms and present in nearly all the cases. These, with shortness of breath, had evidently led to a previous diagnosis of cardiovascular disease in nearly half of these patients. Five of the thirteen patients exhibited a definite hypertension, three showing a high diastolic pressure and cardiovascular damage. The other two showed definite heart and blood vessel changes but to a lesser degree. Attention was directed especially to the gastro-intestinal tract in three of the patients. One patient had been previously treated for more than a year for gallbladder disease and colitis; a second case, diagnosed as sprue, had been treated for a chronic enteritis for five years. The third had been under treatment for stomach trouble. One patient had had a chronic cough and had been diagnosed as having pulmonary tuberculosis. Among the less frequent symptoms, loss of weight was present twice; dizziness was complained of twice; tremor of the fingers but once. A feeling of warmth was not complained of in any instance in this series. The pulse rate was usually a little increased but seldom over 80 per minute. In two cases the rate was between 60 and 70 per minute. The authors urge that in such case adenomas of the thyroid must be carefully excluded as the underlying cause. Toxic adenomas are not necessarily accompanied by an increased basal metabolic rate but may be present with a normal or subnormal rate. The improvement these patients exhibited following operation was striking and gratifying.

Anorexia Nervosa, Anorexia, Inanition and Low Basal Metabolic Rate.—According to Berkman, anorexia nervosa constitutes a definite clinical entity. Briefly, its clinical characteristics are anorexia, inanition, emaciation, various gastro-intestinal disturbances, marked nervous manifestations, and low basal metabolic rate. The condition is not common. At the Mayo Clinic, 117 cases were so diagnosed in thirteen years. It seems probable that the low basal metabolic rate is the result of inanition. The absence of any demonstrable pathologic change characterizes the condition as a physiologic disorder secondary to a psychic disturbance. The reestablishment of normal intake of calories is the direct goal, and to this end treatment with a preparation of thyroid gland has been proved to be a valuable adjunctive measure. A similar condition due to inanition may be found in some cases in the absence of anorexia.

American Journal of Physical Therapy, Chicago

7: 221-264 (Sept.) 1930

Medicolegal Melange. I. S. Trostler, Chicago.—p. 227.
Light Therapy in Cities. E. Biancani and H. Biancani, Paris, France.—p. 231.
Radon Seeds in Treatment of Carcinoma. H. S. Souttar, London, England.—p. 234.
Advantages of Natural Heliotherapy. W. H. Watters, Boston.—p. 245.
Life: An Autonomous Process. O. B. Schellberg, New York.—p. 257.

American J. Roent. & Radium Therapy, New York

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Mediastinal Pleural Effusion. J. Sagel and L. G. Rigler, Minneapolis.—p. 225.
*Bone Lesions in Tardive Heredosyphilis. E. P. Pendergrass, R. L. Gilman and K. B. Castleton, Philadelphia.—p. 234.
Roentgenologically Demonstrable Changes in Bone in Gaucher's Disease: Case. B. R. Kirklin and H. W. Hefke, Rochester, Minn.—p. 258.
Sarcoma of Rib. R. J. Reeves and H. H. Kasabach, New York.—p. 262.
*Menstrual Headaches. C. L. Martin, Dallas, Texas.—p. 267.
*Ten Years' Results with Radium in Treatment of Toxic Goiter. R. E. Loucks, Detroit.—p. 280.
*Value and Place of Radium in Treatment of Diseases of Thyroid Gland. S. Ginsburg, New York.—p. 283.
Barium Enema Entering Esophagus: Case. C. G. Lyons, Hines, Ill.—p. 300.

Bone Lesions in Tardive Heredosyphilis.—Pendergrass et al. report the case of a man who had almost every possible type of bone involvement found in syphilis, all of which responded to treatment. Cutaneous manifestations, and involvement of the liver and spleen were interesting complications. The patient responded to antisyphilitic therapy and the change produced in the bones is described.

Menstrual Headaches.—Martin asserts that one type of menstrual headache, characterized by pain in the occipital or frontal regions, and nausea and vomiting, and relieved during pregnancy, probably has an endocrine origin. This type of headache may be partially or completely relieved in a certain number of women past the age of 40 by the production of an artificial menopause with irradiation. The use of castration in younger women seems of doubtful value and may even accentuate the symptoms.

Radium in Treatment of Toxic Goiter.—Reviewing the results achieved with radium in the treatment of hyperthyroidism, including the diffuse exophthalmic type as well as that associated with adenoma, Loucks says that they parallel those obtained with surgery; the type of case that responds poorly to irradiation is identical with that which requires two or more thyroid operations. Radium therapy accomplishes a marked restoration of sugar tolerance in cases associated with glycosuria, indicating a complete control of the hyperactive thyroid. The primary mortality is nil; preoperative and postoperative morbidity is eliminated; from the standpoint of the period of disability, hospital expenses and the concomitant loss of wage-earning power, radium holds a tremendous economic advantage over any other therapeutic procedure.

Radium in Treatment of Diseases of Thyroid Gland.—Ginsburg ardently advocates the use of radium in the treatment of benign and malignant diseases of the thyroid. It effects more cures and has a much lower mortality than surgery. In exophthalmic goiter, clinical cure of a lasting kind has been obtained not only by implanting radium interstitially into the thyroid gland but also by external application of properly screened radium. Radium therapy, efficiently used, relieves not only the toxic but also the compression phenomena in toxic adenomatous goiter, or toxic adenoma of the thyroid. Radical surgery has failed to produce permanent cure of thyroid cancer even when the operation was performed in the so-called early stage of the disease. The end-results of surgery in thyroid cancer would justify the method only in the absence of any superior method.

Annals of Otol., Rhinol. and Laryngology, St. Louis.

39: 349-562 (June) 1930

Pathology and Intramural Electrocoagulation of Inferior Turbinate. J. C. Beck, Chicago.—p. 349.
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Latent Meningitis Complicating Surgical Mastoiditis; Significance of Headache; Limitation of Pediatrician's Attendance. V. Dabney, Washington, D. C.—p. 527.
Closure of Alveolar Fistula by Scar Tissue Formation. E. P. Weih, Clinton, Iowa.—p. 533.
Accessory Nasal Sinuses: Comparative Morphology of Nasal Cavities of Amphibia. P. R. Nemours, St. Louis.—p. 542.
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Plea for More Conservatism in Treatment of Nasal Accessory Sinus Infections. W. W. Carter, New York.—p. 578.
Upper Respiratory Tract as Guide to Nutritional Disasters. D. C. Jarvis, Barre, Vt.—p. 584.
Novocain Applied Topically as Local Anesthetic in Nasal Surgery. E. Neff and W. B. Dimond, Madison, Wis.—p. 593.
Importance of History in Diagnosis of Brain Abscess. F. T. Hill, Waterville, Me.—p. 595.
Bacteriologic and Cytologic Study of Maxillary Antrum in Children. B. J. Ashley and W. V. Frick, Portland, Ore.—p. 605.
Simple Method of Keeping Sinus Roentgen Records. J. A. Pratt, Minneapolis.—p. 634.
Laryngeal Diphtheria. V. K. Hart, Statesville, N. C.—p. 636.

Annals of Surgery, Philadelphia

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*Influence of Hyperthyroidism on Secretion of Free Hydrochloric Acid. A. Brown, Omaha.—p. 321.
*Cardiac Arrest. T. M. Green, Wilmington, N. C.—p. 331.
*Chordotomy for Intractable Pelvic Pain. C. S. Beck, Cleveland.—p. 335.
*Mortality and Late Results of Subtotal Gastrectomy for Radical Cure of Gastric and Duodenal Ulcer. A. A. Berg, New York.—p. 340.
Deformities and Obstructions of Stomach and Duodenum. A. G. Brenizer, Charlotte, N. C.—p. 367.
*End-Results in Five Hundred Cases of Cholecystectomy. R. L. Sanders, Memphis, Tenn.—p. 376.
Inflammation of Meckel's Diverticulum. W. L. Wolfson and M. J. Clurman, New York.—p. 388.
*Surgical Treatment of Urinary Incontinence in Women. M. K. Smith, New York.—p. 394.
Surgical Treatment of Genital Elephantiasis in Male. D. M. Davis, Baltimore.—p. 400.
Torsion of Spermatic Cord in Infancy. E. J. Donovan, New York.—p. 405.
Dependable Method for Suturing Stomach and Intestines. J. L. Yates and F. Raine, Milwaukee, and W. Thalhimer, Chicago.—p. 410.
*Noneffect of Irradiated Ergosterol in Treatment of Fractures. K. M. Lewis, New York.—p. 415.
Intra-Articular Endothelial Tumors Arising from Synovial Membrane. L. C. Wagner, New York.—p. 421.
Multiple Myeloma as Single Lesion. C. F. Geschickter, Baltimore.—p. 425.
*Malignant Tumors and Their Metastases. J. E. McWhorter and A. W. Cloud, New York.—p. 434.
Desmoid Tumors. J. B. Mason, Rochester, Minn.—p. 444.
Hernia of Umbilical Cord (Exomphalos). A. Horwitz, Washington, D. C.—p. 454.

Influence of Hyperthyroidism on Secretion of Free Hydrochloric Acid.—In Brown's opinion the symptoms of hyperthyroidism can be interpreted in terms of an increased sympathetic drive due to the action of the altered thyroid hormone causing an oversensitization of the thoracicolumbar sympathetic system which overrides the normal antagonistic moderator action of the parasympathetic. The drive is present with varying intensity in the different portions of the sympathetic system and the relative preponderance of ocular, cardiac or gastric symptoms depends on the degree to which the various parts of the sympathetic mechanism are affected by the altered thyroid secretion. Interpreted in terms of the secretion of free hydrochloric acid, the increased sympathetic drive causes a stimulation of the inhibitory acid-secreting fibers of the gastric mucosa and results in a diminution or lack of secretion of acid.

Cardiac Arrest.—Green feels that the occurrence of cardiac arrest is perhaps more frequent than physicians are inclined to think. It may be the cause of death in a large majority of the cases that occur on the operating table, whether it is primarily a cardiac failure or cardiac failure secondary to vasomotor relaxation. Primary cardiac arrest can be combated successfully by cardiac massage. Cardiac arrest secondary to vasomotor relaxation can be prevented by preserving the vasomotor tone during the operation and combated by raising the intracoronary tone through intra-arterial injections of fluid followed by intravenous injections of fluid. In this type of arrest, direct cardiac massage may also be of great value. The success of the issue depends, to a large extent, on the preparedness of the operating room to combat such an eventuality.

Chordotomy for Intractable Pelvic Pain.—Beck's patient had sustained a crushed pelvis and a rupture of the bladder. The left ilium, both ischia and the left pubis were fractured. The left transverse process of the fifth lumbar vertebra was also fractured. The patient suffered considerable pain of a dull, boring, constant nature, localized almost entirely between the costal margin on the left and the lower part of the pelvis. In view of the localization of the pain almost entirely to the left side, it was thought that section of the pain fibers on the right side of the cord would give relief. Laminectomy was carried out over the fourth, fifth and sixth thoracic vertebrae. The dentate ligament on the right side of the spinal cord was picked up in a small clamp and the cord rotated to the opposite side. This exposed the anterolateral tract on the right side. The point of a scalpel was inserted just anterior to the dental ligament to a depth of 3.5 mm. and carried forward for about the same distance. The area of anesthesia on the left side of the body was then determined and it was found to be adequate. The operative wound was sutured. The patient immediately felt relieved of the former pain. Convalescence was uneventful. The area rendered anesthetic to pin-point pain extended from the costal margin on the left downward over the pelvis and left leg. The sensation of heat and cold was lost over this area. The sensation of light touch was preserved. The reflexes were normal. The sense of position and the vibratory sense were normal. There was no motor involvement and there was no difficulty in urination.

Results of Subtotal Gastrectomy for Gastric and Duodenal Ulcer.—In 401 primary subtotal gastrectomies for ulcer of the stomach below the cardia or in the duodenum, Berg reports 6.9 per cent mortality. This mortality includes every death following primary subtotal gastrectomy during six years of ward and five years of private service. It includes all bleeding ulcers, active or arrested, all patients with chronic pulmonary lesions, all patients with chronic cardiovascular disease, all patients with tetany and all patients with chronic renal lesions. He has not seen any case of pernicious anemia following partial gastrectomy. He describes his technic in detail. He also calls attention to several important facts concerning ulcer. First, ulcer of the stomach and duodenum is a local disease dependent on a specific gastritis, free hydrochloric acid in the stomach contents, and a secondary infection. Second, a radical cure must eliminate all of these factors. Third, experience has shown that partial gastrectomy, because it eliminates all these factors, is most likely to effect a radical cure. The number of recurrences after partial gastrectomy is exceedingly small—about 1 per cent. Investigation has shown that the medical treatment of ulcer is attended by just as grave risks as is surgical treatment, and, unless instituted early, is not likely to bring about radical cure; and that when a patient has had one or two good medical treatments and has not been cured, operative procedure should be undertaken.

End-Results in Cholecystectomy.—Of 352 cases accounted for by Sanders, 269 were completely relieved of the symptoms for which the operations were performed. Forty-two patients reported only partial relief but were improved. Only fourteen were not benefited. The digestion was greatly improved in 306 cases. Only partial relief was obtained in thirty-three cases. Thirteen of the entire group were not relieved or were made worse. The condition of the wound was satisfactory in 91.5 per cent of the cases, whereas a bulge or hernia occurred in thirty (8.5 per cent) of the entire group. The incidence of postoperative hernia was far greater in cases in which the wounds were drained than in cases in which they were not drained. Practically all the hernias that occurred were in the cases in which operation had been done through an upper right rectus incision with the rectus muscle retracted to the outer side. After the operation, 87.2 per cent of the patients did not have colic, whereas 12.5 per cent reported having had one or more spells of "bilious" colic. The pain was similar to the former spells and in practically all cases the patients were afraid of the return of the original trouble. After the colic had subsided there was no jaundice in most cases and the progress was then as smooth as it was in the uncomplicated cases. In two cases, stones were later found in the common bile duct and a secondary operation was necessary. In the remaining number it was not possible to determine the cause of recurrent pain in the absence of any apparent unremoved lesion. Sixteen patients (4.5 per cent) reported the appearance of postoperative jaundice of some degree. This could be accounted for in two cases by the finding of stones in the common bile duct, but in the others the cause was less certain. The icterus soon disappeared and did not leave any bad after-effect.

Surgical Treatment of Urinary Incontinence in Women.—Smith states that a careful plastic repair of the anterior vaginal wall with such other gynecologic procedures as may be indicated will correct the impaired bladder control of which many of these sufferers complain in the majority of instances. When the incontinence is more pronounced, the Kelly operation of tightening the vesical sphincter combined with colporrhaphy gives a cure in a considerable proportion of women with relaxed vesical sphincter. When this procedure failed in a case of severe incontinence, the addition of bladder drainage to the plastic procedure on the sphincteric region supplemented by an interposition gave an excellent result.

Noneffect of Viosterol in Treatment of Fractures.—In seventeen cases of various fractures in adults, most of them fractures of the shafts of the long bones, Lewis studied the effect of viosterol on healing. There was no hastening of union or callus formation. The calcium and inorganic phosphorus in the blood was not materially raised. An average rise of only 1.4 mg. of calcium was obtained and the phosphorus showed relatively no change. Delayed union was present in six cases and no benefit was obtained by using viosterol.

Malignant Tumors and Their Metastases.—A summary of the necropsies in 865 cases of malignant tumor is presented by McWhorter and Cloud. Ninety-five of these were cases of sarcoma, none of which showed any metastases. Among the 770 cases of carcinoma, 187 showed metastases. They were present most often in cases of carcinoma of the esophagus, stomach, large intestine, bladder and liver, the two last named having the highest number (29.17 and 39.19, respectively); only thirty-two of 208 stomach cases showed metastases. No metastases were found in the small intestine, ovary, testicle, thymus, melanoma and tooth bud cases, a total of twenty-three cases. The average age for all malignant tumors at necropsy was 51. Excepting in the very aged, age does not seem to influence metastases. In the aged, the neoplasm was usually of local growth. About 69 per cent of the malignant epithelial tumors arising in, or from, the skin and mucous membrane remained local in their growth, invading either the neighboring lymph glands and adjacent tissues or both, while only 28 per cent of the cases arising in glandular organs showed the same local tendency of growth. One of the interesting observations in this review was the number of cases that showed only local invasion of the neighboring tissues and adjacent lymph nodes. Perhaps of even greater interest are the cases in which the neighboring nodes were alone involved. This held true for *carcinomas regardless of their site of origin*, but were much more frequently found in the cases whose site of origin was the stomach, large intestine, urinary bladder and cervix. The most interesting feature of this series is the number of cases of supposedly malignant tumors that did not metastasize. Out of 770 morphologically malignant epithelial neoplasms, 187 showed no obvious evidence of metastases. It is suggested that virulence and body resistance may be the guiding factors in the growth of all malignant neoplasms, as they seem to be in all infections.

Archives of Neurology & Psychiatry, Chicago

24: 439-666 (Sept.) 1930

Ganglioglioma: Tumor of Central Nervous System: Two Cases. C. B. Courville, Loma Linda, Calif.—p. 439.

Reaction of Central Nervous System to Experimental Urea Intoxication. B. J. Alpers, Philadelphia.—p. 492.

Changes of Spinal Cord in Hodgkin's Disease: Two Cases with Unusual Skin Manifestation in One. P. F. Shapiro, Chicago.—p. 509.

Blood Electrolyte Changes in Narcosis: Calcium and Potassium. S. Katzenelbogen, Baltimore.—p. 525.

•Incidence of Fever and Leukocytosis in Multiple Sclerosis. J. B. McKenna, Boston.—p. 542.

•Galactose Tolerance in Dementia Praecox. F. H. Sleeper, Worcester, Mass., and R. G. Hoskins, Boston.—p. 550.

Argyll Robertson Phenomenon. W. G. Spiller, Philadelphia.—p. 566.

Vocal Myasthenia of Postencephalitic Origin: Case. D. M. Olkon, Chicago.—p. 570.

Epidemic Encephalitis. H. A. Riley, New York.—p. 574.

Progress in Psychiatry: IV. Experimental Type Psychology. F. Wertham, Baltimore.—p. 605.

Incidence of Fever and Leukocytosis in Multiple Sclerosis.—The study of 109 records of reasonably certain cases of multiple sclerosis is reported by McKenna with reference to the reactive changes in temperature, leukocyte count and examination of the cerebrospinal fluid. Neither fever nor leukocytosis was shown by 40.4 per cent, but three showed increased cell counts in the cerebrospinal fluid. Elevations in temperature were shown by 55.9 per cent, 44.9 per cent between 99 and 99.5 F. and 11 per cent between 99.6 and 100 F. Definite leukocytosis was shown by 22.9 per cent, 3.6 per cent occurring without elevation in temperature and 19.3 per cent accompanying febrile reactions. Pleocytosis of the cerebrospinal fluid occurred in nineteen cases, or 17.4 per cent; three of these cases showed normal temperatures and leukocyte counts; seven were accompanied by fever alone; two by leukocytosis alone, and seven by both fever and leukocytosis.

Galactose Tolerance in Dementia Praecox.—The galactose tolerance was determined by Sleeper and Hoskins one or more times in 135 cases of dementia praecox. The tolerance level was constant in 15 and variable in 24 of the 39 cases in which multiple determinations were made. Similar variability has been noted by others in the blood sugar curves following the ingestion of dextrose. In the series as a whole there was a downward trend of the galactose tolerance, averaging approximately 15 per cent. In 8 per cent of the subjects the tolerance was above normal, and in 58 per cent it was below normal. The catatonic group showed the highest incidence of normal tolerance and the lowest incidence of depressed tolerance. The hebephrenic group showed the lowest incidence of normal tolerance and the highest incidence of lowered tolerance. The galactose tolerance test appears to have some value in the differential diagnosis of the two types. No relationship between weight, age, creatinine output, protein catabolism or initial blood sugar level and galactose tolerance could be detected. There was some evidence of a decrease of tolerance with the increase of the period of hospitalization. A tendency to lowered tolerance for galactose is added to the list of characteristics of dementia praecox that indicate a depression of functions under endocrine or autonomic control.

Archives of Otolaryngology, Chicago

12: 133-272 (Aug.) 1930

Common Cold. A. Hilding, Duluth, Minn.—p. 133.
Embryonic Tissue in Middle Ear and Mastoid: Two Cases. S. J. Crowe and L. M. Polvogt, Baltimore.—p. 151.
*Pneumobacillus (Friedländer's) Meningitis Secondary to Otitis Media: Two Cases. S. Malis, Los Angeles.—p. 162.
Phlegmon of Neck and Osteomyelitis of Mandible Following Tonsillectomy. J. J. Hochfilzer, St. Paul.—p. 175.
Transposition of Section from Auricle for Correction of Nasal Defect: Case. W. W. Carter, New York.—p. 178.
Primary Blastomycosis of Tongue. J. H. Childrey and G. B. New, Rochester, Minn.—p. 184.
Statistical Studies of Children in Public Schools for Deaf. G. E. Shambaugh, D. B. Hayden, E. W. Hagens and R. W. Watkins, Chicago.—p. 190.
Rare Case of Angioma of Ear-Drum, Auditory Canal, Face, Mouth, Tongue, Pharynx and Larynx. H. P. Schugt, New York.—p. 246.
Infection Involving Pharyngomaxillary Space: Two Cases. J. W. White, Norfolk, Va.—p. 248.

Pneumobacillus Meningitis Secondary to Otitis Media.—Malis points out that, clinically and pathologically, septic leptomeningitis due to the pneumobacillus resembles in every way the fulminating type due to the pneumococcus; while cases due to the latter end fatally, those due to the pneumobacillus, if checked early, may be cured. It is therefore of importance to differentiate these two organisms.

Archives of Surgery, Chicago

21: 365-554 (Sept.) 1930

*Adenoid Cystic Carcinoma: Generalized Metastases in Three Cases of Basal Cell Type. J. W. Spies, New Haven, Conn.—p. 365.
*Topographic Relationship Between Nerve Plexuses and Lymph Nodes of Abdomen. F. Kiss, Szeged, Hungary.—p. 405.
Etiology of Neoplasms of Breast: Relation to Other Tumors of Reproductive System. H. C. Taylor, Jr., New York.—p. 412. (C'td.)
*Osteogenic Sarcoma of Humerus: Case. C. B. Morton, University, Va.—p. 444.
*Ureterocele. W. A. Dawley, Rochester, Minn.—p. 458.
*Changes in Head of Femur After Complete Intracapsular Fracture of Neck: Bearing on Nonunion and Treatment. J. V. Santos, Chicago.—p. 470.
Comparison Between Simultaneous Equal-Sized Closed Obstructions of Duodenum and Ileum. J. J. Morton and W. C. Sullivan, Rochester, N. Y.—p. 531.

Adenoid Cystic Carcinoma.—Although there are well authenticated but rare cases in the literature in which ordinary basal cell carcinomas have extended to the regional lymph nodes, Spies failed to find instances in which there were any proved distant or generalized metastases. That such widespread dissemination may occur is believed to be reported here for the first time. Three cases are cited. It is this feature that Spies particularly wishes to emphasize.

Relationship Between Nerve Plexuses and Lymph Nodes of Abdomen.—Kiss asserts that the abdominal lymph nodes lie in close topographic connection with the ganglions and nerve plexuses. Pathologic changes in the lymph nodes, such as hyperemia and enlargement, may cause various nervous symptoms, such as irritation and paresis. The ordinary operative removal of diseased lymph nodes may result in various injuries to the nerves and ganglions. This explains various postoperative complications after such operative procedures.

Osteogenic Sarcoma of Humerus.—The history of a case of telangiectatic osteogenic sarcoma of the humerus is presented by Morton and the recent literature on osteogenic sarcoma briefly reviewed. The principal features of the case were the extreme rapidity of growth of the tumor and the immense size attained by it. Only four months elapsed between the time of the onset of the first symptoms and the death of the patient. The case is discussed briefly from the standpoint of the pathology, diagnosis and treatment.

Ureterocele.—Two cases are reported by Dawley. In neither of these cases was a positive diagnosis made by cystoscopy. Although ureterocele was considered in each, neither presented the usual appearance of ureterocele at cystoscopic examination; the intermittent ballooning and translucence were absent. The etiology is not clear in either case. In one case, the condition was associated with a congenital anomaly of the urinary tract. In both cases, in all probability, the condition had been present for a longer time than the duration of severe symptoms, which in the first case evidently were due to superimposed infection and in the second to obstruction at both ureteral and urethral orifices. Pyuria had been a persistent symptom in both cases. The radical method of treatment was deemed advisable in view of the infected functionless kidneys and the associated pathologic changes in the ureters. In one case, the ureterocele sac was resected transvesically; in the other it was not disturbed.

Changes in Head of Femur After Complete Intracapsular Fracture of Neck.—Fourteen cases form the basis of Santos' study. He says: After complete intracapsular fracture of the neck of the femur, the proximal fragment may either remain alive as a result of nourishment received through the vessels of the ligamentum teres or become necrotic. If efficient reduction and fixation are carried out early and sufficiently long maintained, bony union follows in a high percentage of the cases in which the head remains alive and in a smaller but no inconsiderable percentage of cases in which the head becomes necrotic. If bony union occurs in the presence of necrosis of the proximal fragment, the limb should be protected from weight bearing for many months while creeping substitution of dead head by new bone is taking place. If marked collapse and deformity of the necrotic head should develop, a Whitman reconstruction operation with excision of the head may sometimes be indicated. If nonunion results and the head remains alive, a patient who is a good risk may be operated on by use of an autogenous bone peg or by the Whitman or the Brackett reconstruction method according to the case. In case of nonunion with necrosis of the head, there may be slow invasion of tissue from the round ligament or from adhesions with gradual absorption and partial replacement of the necrotic tissue by living bony elements. However, the proper operative treatment in case of nonunion with necrosis of the proximal fragment appears to be excision of the head and the performance of a Whitman reconstruction operation. By roentgenographic studies, it is usually possible to differentiate between a head that remains alive and one that becomes necrotic because of the difference in density which develops during the period of disuse and because of the difference in internal structure and occasionally in contour which develops during the period of reconstruction.

Arkansas Medical Society Journal, Little Rock

27: 75-91 (Sept.) 1930

Treatment of Bone Infections by Method of Leopold Ollier. A. DeGroat, Fayetteville.—p. 75.
General Practitioner and Diagnosis of Early Tuberculosis. J. D. Riley, State Sanatorium.—p. 77.
Facts Concerning Care of New-Born Child. G. D. Murphy, El Dorado.—p. 84.

Illinois Medical Journal, Oak Park

48: 157-232 (Sept.) 1930

Health Department and Practicing Physician. H. M. Camp, Monmouth.—p. 175.
Uroselectan in Intravenous Urography. J. Welfeld and D. H. Pardoll, Chicago.—p. 179.
Probation: First Line of Defense. G. T. Palmer, Springfield.—p. 187.
Endocrines in Gynecology: Dysmenorrhea and Other Menstrual Disorders. A. G. Gabrielianz, Chicago.—p. 193.
Differential Diagnosis of Pain of Angina Pectoris and Radicular Syndrome of Hypertrophic Osteoarthritis of Spine. D. C. Sutton, Evanston.—p. 202.
Management of Debilitated Surgical Patients. R. K. Packard, Chicago.—p. 206.
County Medical Society and Practicing Physician. L. O. Frech, Decatur.—p. 210.
Tularemia: Case in Chicago. H. G. Leon, Chicago.—p. 214.
Symposium of Mentality. G. G. Kilgour, Chicago.—p. 215.
Treatment of Injuries of Eye. E. F. Garraghan, Chicago.—p. 217.
Preoperative Management of Prostatic. D. F. Rudnick, Chicago.—p. 219.
Arthritis from Medical Viewpoint. S. Fahlstrom, Chicago.—p. 221.
Acute Abdominal Pain. F. G. Dyas, Chicago.—p. 226.

Indiana State M. Assn. Journal, Fort Wayne

23: 395-472 (Sept. 15) 1930

Bilateral Renal Lithiasis. H. G. Hamer, Indianapolis.—p. 395.
New Things in Bacteriology. T. B. Rice, Indianapolis.—p. 401.
Emergency Surgical Operations in Presence of Hyperthyroidism; Acute Hyperthyroidism as Postoperative Complication. J. K. Berman, Indianapolis.—p. 407.
Next Important Step in Administrative Public Health in Indiana. W. F. King, Indianapolis.—p. 411.
Present Status Regarding Etiology of Gastric Ulcer. R. W. [illegible], Fort Wayne.—p. 413.
Diphtheria Pathology. F. Forry, Indianapolis.—p. 416.

Iowa State Medical Society Journal, Des Moines

20: 395-446 (Sept.) 1930

Converging Trend of Medicine and Surgery. E. M. Myers, Boone.—p. 395.
Phases of Cancer Problem. W. R. Jepson, Sioux City.—p. 398.
Diagnosis and Treatment of Early Cancer of Breast. W. L. Hearst, Cedar Falls.—p. 400.
Indications for Treatment in Abortions. H. C. Hesseltine, Iowa City.—p. 406.
Public Health Survey of Iowa. A. J. McLaughlin, Chicago.—p. 409.
Complications of Duodenal Ulcer. G. N. Best, Council Bluffs.—p. 416.
Differential Diagnosis of Pulmonary Tuberculosis, Lung Abscess and Bronchiectasis. F. P. McNamara, Dubuque.—p. 421.
Effect of Complemental Feedings on Initial Weight Loss of New-Born. J. H. Randall, Iowa City—p. 425.
Indications for Certain Special Diagnostic Blood Studies. J. J. Clemmer, Iowa City.—p. 427.

Johns Hopkins Hospital Bulletin, Baltimore

47: 123-187 (Sept.) 1930

*Prognosis for Epidemic Encephalitis in Children. H. A. Howe, Baltimore.—p. 123.
*Placenta from Case of Malaria. G. B. Wislocki, Baltimore.—p. 157.
Views of Adam Smith on Medical Education. M. S. Guttmacher, Baltimore.—p. 164.
Manner of Anastomosis of Hepatic and Portal Circulations. J. M. Olds *and E. S. Stafford, Baltimore.—p. 176.*

Prognosis for Epidemic Encephalitis in Children.—A series of sixty-six children was investigated by Howe at periods varying from one to ten years after the onset of epidemic encephalitis. Immediate mortality based on all hospital admissions since 1918 was found to be 11 per cent. Complete incapacity was found in 19 per cent, partial incapacity in 22 per cent, and recovery in 42 per cent. The acute illnesses were divided into three groups: 1. Somatic (56 per cent of the cases), characterized by paralyses or excitation of the somatic or cranial nerves. 2. Meningeal (16 per cent), in which signs of meningeal irritation predominated. 3. Abortive (19 per cent), in which no true acute illness of ordinary encephalitic type occurred but the early and frequently unheralded appearance of characteristic progressive sequelae took place, often accompanied by febrile reaction. The immediate mortality was higher in the somatic group and at early ages; recovery was almost invariable in the meningitic form, and the most dreaded sequel, parkinsonism, ensued most frequently after the abortive form. Sequelae were divided into progressive and nonprogressive, the former including hyperactivity (usually of a bizarre type), sleep inversion, personality changes, hyperpnea and tics, (all excitation phenomena), the latter characterized by residuums of the acute illness in the form of paralyses, choreiform movements, emotional instability and mental retardation. The nonprogressive sequelae most frequently followed the general somatic type of acute illness and, with the exception of mental retardation, offered a good prognosis. Progressive sequelae justified an unfavorable outlook and, when present as initial symptoms, concomitant with the acute illness, almost invariably led to parkinsonism. Parkinsonism was further shown to ensue only after a characteristic type of progressive (excitation) sequelae.

Placenta from Case of Malaria.—The study made by Wislocki of the placenta from a case of malaria affords proof that the chorionic syncytium is incapable of phagocytizing an inert suspension of pigment present in the intervillous spaces or of transmitting such particles from mother to fetus. Malarial parasites are present in the placenta in great abundance within the erythrocytes in the intervillous spaces. Malaria induces the accumulation of large numbers of monocytes and lymphocytes in the placental circulation. Of these cells, the monocytes phagocytize, abundantly, pigment released by the activity of the malarial organisms. These phagocytic monocytes do not penetrate the fetal tissues but do enter the masses of fibrin formed on the villi, which are denuded of syncytium at these sites. Typical clasmatocytes are not encountered in the intervillous spaces. The monocytes and lymphocytes which gather in the placenta are brought there from other parts of the maternal body where they are produced. The villi, including their stroma and covering chorionic syncytium, are anatomically normal and not visibly affected by the malarial organisms or their products. Wislocki suggests that it is unlikely that malarial organisms can enter or penetrate the chorionic syncytium, so that the transmission of malaria from mother to fetus occurs rarely, if at all.

Journal of Immunology, Baltimore

19: 255-340 (Sept.) 1930

Nature of Thermoprecipitins. D. D. Nai, Milan, Italy.—p. 255.
Isohemagglutination: IV. Chances of Proving Nonpaternity; Blood Groups. A. S. Wiener, M. Lederer and S. H. Polayes, New York.—p. 259.
Colloidal Gold Test in Experimental Poliomyelitis. C. W. Jungeblut and D. Khorazo, New York.—p. 283.
Preparation of Antigens from Cultures of Treponema Pallidum. A. B. Wadsworth, J. E. Van Amstel and M. W. Brigham, New York.—p. 289.
Relationship Between Complement and Opsonin: Experiments with Congo Red. J. Gordon, Leeds, England.—p. 303.
Determination of Amounts of Antitoxic Globulin Solution Effective in Sensitizing Guinea-Pig: Amount of Cross Sensitization Between Antitoxic Globulin or Serum Obtained from Horse, Goat and Calf. D. M. Hehner, New York.—p. 307.
Typhoid Agglutinin Production: Rôle Dosage, Total Amount of Agglutinogen Injected and Frequency of Inoculation Play. C. A. Behrens and C. H. Keipper, Lafayette, Ind.—p. 321.

Journal of Urology, Baltimore

24: 217-342 (Sept.) 1930

Cystitis Emphysematosa: III. Additional Case in Man, Associated with Cystitis Cystica. R. G. Mills, Fond du Lac, Wis.—p. 217.
*Ascending Infection of Kidney and Kidney Pelvis. C. M. Gruber and J. Rabinovitch, St. Louis.—p. 233.
*Conservative Surgery of Bilateral Hydronephrosis. A. J. Scholl, Los Angeles.—p. 251.
Effect of Denervation of Lower Ureter on Incidence of Ureteral Reflux in Dog. E. H. Barksdale and W. W. Baker, Nashville, Tenn.—p. 263.
Ureteral Stricture: Ureter Above Point of Partial Obstruction. V. Vermooten and B. C. Wheeler, Boston.—p. 269.
*Spinal Anesthesia. M. F. Campbell, New York.—p. 279.
Leiomyosarcoma of Urinary Bladder. H. D. Caylor and W. Walters, Rochester, Minn.—p. 303.
Treatment of Bladder Neck Contracture or Median Bar. H. W. Martin, Los Angeles.—p. 313.
Recurrent Prostatic Hypertrophy: Case. B. Lewis and G. Carroll, St. Louis.—p. 319.
Revolver Bullet Entering Suprapubically and Lodging in Posterior Urethra. M. H. Wyman, Columbia, S. C.—p. 325.
Pioneer Urologist. A. E. MacKay, Portland, Ore.—p. 329.
Intradermal Injections of Gonococcal Bouillon Filtrated. B. C. Corbus and V. J. O'Conor, Chicago.—p. 333.

Ascending Infection of Kidney and Kidney Pelvis.—Gruber and Rabinovitch present experimental evidence which favors the theory that ascending ureteral infections are a cause of pyelitis.

Conservative Surgery of Bilateral Hydronephrosis.—A patient with bilateral hydronephrosis, a large part of the left kidney being completely destroyed and the right kidney less extensively, was treated by Scholl by repeated pelvic lavages followed by *freeing* of the kidneys from extensive adhesions, partial decapsulation and nephropexy. Two months elapsed between the operations on the two kidneys. The result of this conservative procedure has been highly satisfactory.

Spinal Anesthesia.—Campbell regards spinal anesthesia as being the ideal anesthetic for operations below the diaphragm and of invaluable usefulness in patients suffering from advanced nephropathy. Since the introduction of ephedrine, hypotension is now only a relative contraindication to the application of spinal anesthesia. As with all anesthetics, there are a few rather definite contraindications; the more robust the patient, the less is the anesthetic risk. Untoward immediate postanesthetic sequelae result from temporary bulbar anemia; later post anesthesia sequelae are negligible. In Campbell's series, the ultimate postoperative mortality was 4.4 per cent less in those patients operated on under spinal anesthesia than in those to whom general anesthesia was administered. Of particular interest has been the reduction of the operative mortality following upper urinary tract surgery and prostatectomy.

Kansas Medical Society Journal, Topeka

31: 311-350 (Sept.) 1930

Problems of Cancer. J. C. Bloodgood, Baltimore.—p. 311.
Gastric and Duodenal Ulcers. L. O. Nordstrom, Salina.—p. 316.
Stasis of Cecum and Ascending Colon. L. D. Johnson, Chanute.—p. 322.
Life Conservation. J. W. Graybill, Newton.—p. 327.
Rat Bite Fever. F. Foncannon, Emporia.—p. 331.
Control of Bleeding in Tonsillectomy, Operative and Postoperative. E. M. Freund, Albany, N. Y.—p. 675.
Stammering. R. M. Lukens and M. Trumper, Philadelphia.—p. 680.
Loaded Revolver Cartridge in Bronchus: Case. M. P. Stiles, Birmingham, Ala.—p. 683.
Peptic Ulcer of Esophagus. F. S. Mainzer, Clearfield, Pa.—p. 685.

Medical Journal and Record, New York

132: 209-260 (Sept. 3) 1930

*Infectious Origin of Pernicious Anemia and Relation of Pyelitis to Achlorhydria and Pernicious Anemia. J. Blair, Cleveland.—p. 209.
Brain Tumor (Spongioblastoma) Simulating Encephalitis Involving Frontal Lobe, Basal Ganglia and Third Ventricle. W. C. Menninger, Topeka, Kan.—p. 213.
Vaccines: Use in Control and Cure of Disease. R. O. Clock, Pearl River, N. Y.—p. 218.
Putrefactive Intestinal Toxemia. W. E. Fitch, Bedford, Pa.—p. 221.
Correlation Between Intelligence and Physical Condition in 14,176 Retarded School Children. N. A. Dayton, Boston.—p. 222.
Respiratory Infections in Children. N. Ginsberg, Long Beach, N. Y. —p. 225.
Technic of Spinal Anesthesia with Spinocaine. T. E. Jones, Cleveland. —p. 226.
*Diet in Gallbladder Diseases. M. Einhorn, New York.—p. 227.
*Acute Yellow Atrophy Associated with Neoarsphenamine Injections. A. Bortin, New York.—p. 228.
Gallbladder Disease. H. A. Royster, Raleigh, N. C.—p. 232.
Pathologic Conditions of Liver: Electric Diagnosis and Treatment. J. J. E. Maher, New York.—p. 237.
Toxic Hepatitis Due to Cincophen-Containing Patent Medicine. M. Grolnick, New York.—p. 240.
Recent Advances in Treatment. H. I. Goldstein, Camden, N. J.—p. 243.
California Medicine. J. W. Shuman, Los Angeles.—p. 246.

Infectious Origin of Pernicious Anemia; Relation of Pyelitis to Achlorhydria and Pernicious Anemia.—Blair concludes his review by stating: It seems evident that the actual anemia of pernicious anemia is not due to erythrocyte hemolysis or excessive destruction in the vascular system but is the result of a deficiency in the formation of erythrocytes and that the deficiency is due to a lack of sufficient stroma material required for the formation of the erythrocytes. In pyelitis there is a constant loss of granular leukocytes from the body and the occurrence of pyelitis in pernicious anemia constitutes an insistent demand for granular leukopoiesis. There are certain common relationships between erythrocytes and granular leukocytes: (*a*) They are formed in the same location, in bone marrow, in the adult; (*b*) both erythrocytes formation and granular leukocyte formation are decreased in the relapse of pernicious anemia; (*c*) they exhibit a simultaneous response to liver therapy. It seems probable that the excessive production of leukocytes over a long period exhausts from the body the substance (the specific x factor of liver) necessary to both granular leukocyte and erythrocyte formation and is thus responsible for the anemia and leukopenia. It seems probable that the achlorhydria present in pernicious anemia is the end-result of a chronic mild stimulation of gastric secretion associated with a mild chronic infection (pyelitis, and producing an exhaustion of the secreting mechanism of the stomach from overuse, coupled with an exhaustion from the stomach tissues themselves of the specific x factor present in normal stomach tissues. It would seem that the presence of pyelitis in pernicious anemia gives adequate explanation for the presence of fever, loss of weight, the tendency to remission and relapse, and other symptoms. The prevention of pernicious anemia is therefore the prevention of focal infection and consequent urinary tract infection, the detection and cure of focal infection and urinary tract infection already established, and the preventive or palliative administration of the specific substance found abundantly in liver.

Diet in Gallbladder Diseases.—The following rules are laid down by Einhorn for all gallbladder patients. 1. Meals should be ingested frequently (at not too long intervals), in order to induce a complete emptying of the gallbladder quite often. 2. Each meal should consist of mixtures containing the three principal groups of nutritive materials (proteins, carbohydrates, fats) in the right proportions. Excesses in the quantity of food, also too luxurious meals, should be carefully avoided. Likewise too much spice, too much meat, too much beer or wine are to be guarded against. Attention should be given to procuring daily a thorough evacuation of the bowels. Outdoor sports should be indulged in, and long walks—but not to a degree of overfatigue—should be practiced. Increase of the intake fluids should be encouraged. In gallbladder cases, without jaundice, practically all kinds of ordinary foods, excepting highly indigestible or strongly spiced substances, are permissible. In gallbladder diseases, with jaundice, special attention must be paid with regard to the selection of an appropriate diet. Fats are poorly utilized and should therefore be used with great moderation. The following may be arranged as a daily quantum of foods: 2½ quarts of skimmed milk, 870 calories; 100 Gm. of wheaten bread, 245 calories; 100 Gm. of oatmeal (flour), 338 calories, and 100 Gm. of sugar, 400 calories, to which can be added some fresh fruit and a green vegetable. A little later one or two eggs are added. In order to increase the digestibility of the nutritive material pancreatic ferments are advantageously administered. It is then feasible to make the bill of fare more varied, with much profit to the patient. Malignant diseases of the gallbladder and biliary ducts will have to be treated dietetically in a similar manner as the benign disorders of these organs. At first the diet as outlined will be employed. When, however, the disease has already made greater inroads and the usual foods cannot be handled by the patient, the diet will have to be selected mostly from liquid and semisolid nutriments. Milk, buttermilk, koumiss, gruels, broths, eggnogs, sweet almond milk, fruit juices, and jellies will play a great part. An attempt must always be made to keep the organism from losing too much, but toward the end it is seldom possible to supply adequate nutrition. Everything in the line of feeding must be selected in such a manner that it will give comfort and pleasure to the patient until life is ended.

Acute Yellow Atrophy Associated with Neoarsphenamine Injections.—A case is reported by Bortin of a patient with tertiary syphilis who during a course of mercury and neoarsphenamine developed jaundice and died, with changes in the liver not unlike those of acute yellow atrophy. The probable immediate cause was the injection of neoarsphenamine. The predisposing cause of acute yellow atrophy was the injections of mercury.

New England Journal of Medicine, Boston

203: 499-548 (Sept. 11) 1930

Obstetric Aspect of Intracranial Hemorrhage. F. C. Irving, Boston.—p. 499.
*Symptomatology and Immediate Treatment of Cranial and Intracranial Injury in New-Born, Including Intracranial Hemorrhage. D. Munro, Boston.—p. 502.
*Late Effects of Obstetric Injuries at Various Levels of Nervous System. R. K. Byers, Boston.—p. 507.
*Significance of Acidophilic Cells in Thyroid Gland. S. Warren and W. Stoller, Boston.—p. 523.
Future of Tuberculosis Control. K. Emerson, New York.—p. 524.
Summary of What Has Been done at Lakeville. Z. B. Adams, Boston. —p. 526.
Value of Such Institution as Lakeville to Practitioner. E. O. Otis, Exeter, N. H.—p. 527.
Considerations with Respect to Nonpulmonary Tuberculosis. W. P. Bowers, Boston.—p. 529.
Services Available at Lakeville State Sanatorium, Middleboro, Mass. L. A. Alley, Middleboro, Mass.—p. 531.

Immediate Treatment of Intracranial Injury in New-Born.—A detailed consideration of the symptoms observed in 117 cases of cranial and intracranial injury in the new-born, together with a brief consideration of the immediate treatment of these conditions, is presented by Munro. A first baby that is hypertonic, apathetic, refuses to nurse and has a tense anterior fontanel, an abnormal cry and some respiratory abnormality is presumably suffering from some form of intracranial injury. If the cerebrospinal fluid pressure is higher than normal, this diagnosis is confirmed. A first baby that is pale and flaccid, refuses to nurse and has a respiratory abnormality immediately after delivery is presumably suffering from surgical shock. If the cerebrospinal fluid pressure is less than normal, this diagnosis is confirmed. In the presence of surgical shock, treatment should be reduced to the absolute minimum. In the presence of hemorrhagic disease of the new-born, complicating cranial and intracranial injury, the bleeding and clotting times should be brought to normal before decompressive treatment is begun. All types of cranial and intracranial injury in the new-born are complicated at some time by an increased intracranial pressure. Treatment of this complication never should be omitted. The diagnosis "intracranial hemorrhage of the new-born" should be expanded to include cerebral edema and fracture of the skull and should be stated as "cranial and intracranial injury in the new-born."

Effects of Obstetric Injuries on Nervous System.—The possible effect of obstetric trauma to the nervous system of the new-born is discussed by Byers. Case histories are briefly given illustrating the results of lesions involving the nervous system from peripheral nerves to cerebral hemispheres. Attention is called to a method of treatment that is effective provided there exists an intact nervous pathway from a functionally active cerebral cortex to the muscles.

Significance of Acidophilic Cells in Thyroid Gland.—Warren and Stoller present a summary of the cases in which excised thyroid tissue showed acidophilic cells. From 1923 to 1929 this change was encountered in seventy-five patients, thirteen of whom developed actual or suspected postoperative myxedema. Since less than 20 per cent of patients whose thyroids showed acidophilic cells became myxedematous, the presence of these cells is not of practical prognostic value, although it is perhaps a more definite sign than any other.

203: 549-612 (Sept. 18) 1930

*Treatment of Carbuncles by Roentgen Ray: Analysis of Fifty Cases. R. U. Light and M. C. Sosman, Boston.—p. 549.
Physiologic Basis of Surgery of Sympathetic Nervous System. J. F. Fulton, New Haven, Conn.—p. 555.
Analysis of Cases of Infantile Paralysis Treated at Shriner's Hospital for Crippled Children, Springfield, Mass., During 1925. R. N. Hatt and G. deN. Hough, Jr., Springfield, Mass.—p. 561.
Progress in Study of Cardiovascular Disease in 1929. E. F. Bland and H. B. Sprague, Boston.—p. 574.

Treatment of Carbuncles by Roentgen Ray.—From a study of fifty cases of carbuncle treated with roentgen ray, Light and Sosman conclude that when benefit occurred it lay usually in a hastened necrosis of the lesion, a softening or liquefaction of a carbuncle in the indurated stage. In a few instances the spreading tendencies of the lesions were checked, and healing occurred by drying up and absorption without any extensive drainage of necrotic products. Roentgen therapy was occasionally employed with success following surgical procedures which failed to halt the spread of the carbuncle, and in these the acidity of the infectious process was diminished and the peripheral spread halted. Relief of pain occurred in some instances of cervical carbuncles and, quite strikingly, in most of those of the face. Of the entire series, thirty-four patients were observed to have been improved by roentgen therapy, and sixteen to have received no benefit from this treatment. Thirteen out of fifteen women patients were improved; three fifths of the men, when the site of predilection was the neck, were helped by irradiation. Eight of the nine carbuncles of the face responded excellently, as did most of those of the extremities. The proportionate success of roentgen therapy diminished somewhat with the increasing size of the lesion; 75 per cent of those under 5 cm. diameter were benefited, whereas but 60 per cent of those larger than 9 cm. diameter improved as a result of roentgen ray. Diabetes seemed to have little bearing on the chances of success from irradiation.

New York State Journal of Medicine, New York

30: 1077-1142 (Sept. 15) 1930

Bronchiectasis: Analysis of Fifty-One Cases. W. W. Priddle, Toronto, Canada.—p. 1077.
*Simple Dietetic System for Use in Metabolic Disorders. I. J. Levy, New York.—p. 1084.
Treatment of Intra-Oral Cancer: Radium Therapy. D. Quick, New York.—p. 1094.
*Home vs. General Hospital Childbirths. W. B. D. Van Auken, Troy.—p. 1096.
Hemopneumothorax of Uncertain Etiology: Case. A. H. Terry, Jr., New York.—p. 1100.
Remedy for Fee-Splitting Among Doctors. G. F. Chandler, Kingston.—p. 1103.
What Orthopedic Conditions the General Practitioner Has to Look for in Periodic Examination. S. W. Boorstein, New York.—p. 1107.

Simple Dietetic System for Use in Metabolic Disorders.—Levy's system is based on a key chart in which similar foods have been grouped so that varying quantities have similar distribution of protein, carbohydrate and fat. From this chart, diets of any caloric value or any desired distribution of foodstuffs may be derived. Specimen diets are given.

Home vs. General Hospital Childbirths.—Home and general hospital childbirths are discussed by Van Auken with reference to proper preparations, obstetric emergencies, infections, nursing services, the physicians' and patients' attitude, and the relative financial cost. It is obvious from this article that, except for the possible greater frequency of infection in the general hospital and the limited ability of the nursing service for patients unable to afford a full time nurse, the general hospital is a more advantageous place for a childbirth. Home childbirths are desirable and successful when there are no complications and when the patient does not want the maximum relief from her pain. As it is impossible always to predict complications, general hospital childbirths insure greater safety.

Rhode Island Medical Journal, Providence

13: 127-144 (Sept.) 1930

Management of Convalescence in Rheumatic Heart Disease. W. P. Buffum, Providence.—p. 127.
Treatment of Neurosyphilis. W. C. Weigner, Providence.—p. 130.
Sinusitis in Infants and Children. N. A. Bolotow, Providence.—p. 134.

Tennessee State Medical Assn. Journal, Nashville

23: 313-352 (Sept.) 1930

Chronic Retrobulbar Neuritis. W. H. Wilmer, Baltimore.—p. 313.
Rationale of Hysterectomy Following Cesarean Section in Cases of Intra-Uterine Infection. J. L. Crook, Jackson.—p. 325.
Puzzling Types of Indigestion. W. C. Alvarez, Rochester, Minn.—p. 330.

Virginia Medical Monthly, Richmond

57: 355-424 (Sept.) 1930

Tardy Symptoms of Congenital Lesions. O. H. P. Pepper, Philadelphia.—p. 355.
Depressor Substance of Liver in Treatment of Hypertension. J. D. Willis, Roanoke.—p. 361.
Symptomatology of Hypothyroidism. P. S. Smith, Abingdon.—p. 365.
Varicose Veins. J. O. Fitzgerald, Jr., Richmond.—p. 368.
Ligation of External Carotid Artery to Control Nasal Hemorrhage. A. T. Hawthorne, Winchester.—p. 370.
Cerebral Thrombosis. M. J. Payne, Staunton.—p. 372.
Injuries of Carpal Bones of Wrist: Case of Dislocation of Semilunar Bone and Fracture of Scaphoid Bone and Ulnar Styloid. R. L. Anderson, Richmond.—p. 381.
Epidural Sacral and Parasacral Anesthesia in Surgery of Perineum. J. W. Sayre, Newport News.—p. 384.
Eugenic Sterilization. E. R. Mickle and C. E. Holderby, Williamsburg.—p. 387.
Venereal Disease Prevalence in Virginia. L. J. Usilton and W. D. Riley, Washington, D. C.—p. 389.
Perineotomy Versus Laceration. R. P. Kelly, Lynchburg.—p. 397.
Optic Neuritis: Tonsil as Etiologic Factor. W. O. Bailey, Leesburg.—p. 401.
Acute Anterior Poliomyelitis. C. F. Graham, Wytheville.—p. 402.
Suppurative Arthritis Due to Hemophilic Bacteria. F. W. Shaw, Richmond.—p. 404.
Tularemia in Virginia—1929. H. G. Grant, Richmond.—p. 406.

West Virginia Medical Journal, Charleston

26: 513-576 (Sept.) 1930

Private Practice and Public Health. G. H. Bigelow, Boston.—p. 513.
Choice of Anesthetic Adaptable to Patient and Disease. C. F. McCuskey, Rochester, Minn., and F. M. Moxon, Milwaukee.—p. 521.
Agranulocytosis: Three Cases. F. C. Hodges, Huntington.—p. 532.
Rectal Narcosis with Avertin. C. C. Greer, Clarksburg.—p. 538.
Importance of Proctoscopic Examination in Early Diagnosis of Carcinoma of Rectum and Sigmoid. W. P. Black, Charleston.—p. 540.
Diagnosis and Management of Lateral Sinus Thrombosis. E. C. Hartman, Parkersburg.—p. 541.
Diverticulitis of Colon: Acute Perforations of Sigmoid. R. W. Whitman, Roanoke, Va.—p. 544.
Pyelitis in Infancy and Childhood. K. M. Jarrell, Beckley.—p. 550.
Sporadic Typhoid Fever with Discovery of Carrier. R. S. Spray, Morgantown.—p. 553.
Acute Ileocolitis (Septic). A. H. Hoge, Bluefield.—p. 554.
Exophthalmic Goiter in Child Aged Six Years. H. Garred, Charleston.—p. 555.
Buried Skin Grafts in Burns of Children. E. B. Henson, Charleston.—p. 557.
Interesting Chest Case. J. W. Moore, Charleston.—p. 559.

Wisconsin Medical Journal, Madison

29: 489-548 (Sept.) 1930

Undulant Fever in Wisconsin. H. M. Guilford, Madison.—p. 489.
Agglutination Reaction in Diagnosis of Undulant Fever. W. D. Stovall and M. Crosswait, Madison.—p. 493.
Uterosalpingography in General Practice. J. M. Johnson, Ripon.—p. 497.
Medical Aspects of Nursery School. B. T. Haessler, Milwaukee.—p. 504.
Principles of Roentgen Therapy: IX. Roentgen Therapy in Dermatology. E. A. Pohle, Madison.—p. 507.
Primary Bilateral Carcinoma of Breasts: Two Cases. R. H. Jackson, J. A. Jackson, G. H. Ewell, Madison.—p. 512.
Echinococcus Cysts of Abdomen and Lung: Case. J. P. Zohlen, Sheboygan.—p. 515.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Actinotherapy & Physiotherapy, London

5: 111-132 (Sept.) 1930

Control of Common Colds by Ultraviolet Rays. G. H. Maughan and D. F. Smiley.—p. 115.
Uses of Static Electricity: Treatment of Enlarged Prostate. R. Creasy.—p. 115.
Remedial Treatment of Scoliosis. A. B. Broman.—p. 118.
Whirlpool Bath Leg Rest. W. Bierman.—p. 120.
Treatment of Erysipelas by Ultraviolet Light. R. K. Brown.—p. 121.
Filters for Use in Actinotherapy. A. Furniss.—p. 123.
Balneotherapy and Dietotherapy in Treatment of Arteriosclerosis. W. E. Fitch.—p. 125.

British J. Experimental Pathology, London

11: 217-286 (Aug.) 1930

Intra-Ocular Pressure and Drainage of Aqueous Humor. F. Ridley.—p. 217.
*Acidity and Chloride Content of Gastric Juice. G. V. Rudd.—p. 240.
*Value of Copper Sulphate Tellurite Medium for Isolation of Diphtheria Bacilli. V. D. Allison.—p. 244.
Use of Heparin-Plasma for Grafting of Spontaneous Mammalian Tumors into Homologous Animals. M. J. A. Des Ligneris.—p. 249.
Relative Amounts of Lysozyme Present in Tissues of Some Mammals. H. Florey.—p. 251.
*Flicker Hemoglobinometer. C. E. Jenkins.—p. 261.
Tar Cancer in Mice: I. Technic of Comparative Experiment. A. F. Watson and E. Mellanby.—p. 267.
Rous Sarcoma No. 1: Loss of Filtrate Activity at Incubator Temperature: Protection by Means of Hydrocyanic Acid. W. E. Gye and W. J. Purdy.—p. 282.

Acidity and Chloride Content of Gastric Juice.—A comparison of the gastric secretory response to a meal of gruel and to one of cream was made by Rudd. A fractional analysis of the gastric contents was carried out and total and neutral chloride and total acidity were estimated in the samples. The total chloride content of the gastric secretion was found to remain approximately constant, while the total acidity and neutral chloride show wide variations. The theory of the formation of neutral chloride by the neutralization of gastric acid by duodenal fluid does not explain these results. It is concluded that the variations in the composition of the gastric contents are due to changes in the amounts of hydrochloric acid and neutral chloride being secreted by the gastric mucosa. In an estimation of the secretory activity of a stomach, the total chloride is the significant quantity.

Copper Sulphate Tellurite Medium for Isolation of Diphtheria Bacilli.—Allison compared the results obtained in the isolation of *C. diphtheriae*, *C. hofmannii* and diphtheroid bacilli from nasal, throat and ear swabs, using Douglas' medium and copper sulphate tellurite serum agar. The results show a well marked difference in the percentages of organisms isolated on the two mediums, the differences in all cases being in favor of the copper sulphate medium. The better results obtained with the copper sulphate medium are believed to be due to its greater selective action for the diphtheria bacillus and organisms of the diphtheroid group, and to the powerful inhibitory action of the copper sulphate on staphylococci, streptococci and other commensal organisms found in the nose, throat and ears. Inhibition of the spread of *B. proteus*, resulting from the presence of copper sulphate in the medium, facilitated isolation of *C. diphtheriae*, when this had proved impossible with other mediums.

Flicker Hemoglobinometer.—The instrument devised by Jenkins consists of two fixed lights and a Simmance-Abady photometer head in a fixed position between them. The brightness is varied by the depth of a glass plunger in a cup containing a colored solution through which the light from one of the lamps passes. A glass cell is placed between the head and the other light and contains the sample to be examined. With a capillary pipet, 0.1 cc. of blood is added to 4.9 cc. of distilled water in a small bottle or flask. The solution is gassed, centrifugated, and estimated in the apparatus after first checking the balancing point of the standard at 40 mm. The reading obtained is read on the graph in terms of percentage in Haldane's scale or any other scale which the observer chooses to use. If preferred, an actual blood standard of 2 per cent CO-hemoglobin prepared by the makers of the Haldane apparatus can be used instead of the artificial standard of cobalt chloride.

British Medical Journal, London

2: 309-340 (Aug. 30) 1930

Technic of Radium Therapy Today. D. C. L. Fitzwilliams.—p. 309.
Treatment of Pruritus Ani and Anal Fissure. W. B. Gabriel.—p. 311.
Anesthetic Explosions. K. B. Pinson.—p. 312.
Cerebral Hemorrhage in Young Woman. S. C. Lewsen.—p. 313.
*Old-Standing Tuberculous Kidney: Case. J. J. Conybeare.—p. 314.
Hemorrhagic Dry Bronchiectasis. A. J. S. Pinchin and H. V. Morlock.—p. 315.
Four Different Types of Blood Sugar Curve in One Patient Within Seventeen Months. F. J. G. Lishman.—p. 318.
Subsequent History of Patients Treated with Residual Antigen of B. Tuberculosis. C. E. Jenkins.—p. 318.
Tuberculous Adenitis with Dermal Bullae. R. C. Holderness.—p. 319.
Congenital Umbilical Hernia of Liver and Bowel. K. A. Allison.—p. 319.

Old-Standing Tuberculous Kidney.—Conybeare reports a case of what probably was an instance of spontaneous cure of a tuberculous kidney by its being transformed into an innocuous calcareous mass. The whole of the organ appears to have become replaced by a tuberculous pyonephrosis of enormous dimensions, and the tuberculous caseous material has become so infiltrated with lime salts as to produce a dense shadow to roentgen rays. The ureter of the affected kidney has never been permanently occluded, as evidenced by the shadows in the roentgen film. Inquiries from the patient elicited the fact that from time to time he experienced a sensation "as if a tap had been turned off in the bladder." This was followed by the passage from the urethra of cretaceous material, which the patient described as like tooth-paste in color and consistency. It would appear, therefore, that from time to time some of the caseous material from the kidney was passed in the urine. No tubercle bacilli could be found, and probably the tuberculous process is completely arrested. The acute symptoms with which the patient started a recent illness were presumably due to an exacerbation of his chronic urinary infection preventing satisfactory functioning of his right kidney. The case tends to show that, even when there is high resistance to tuberculous infection, involvement of the kidney may lead to serious consequences as the result of secondary urinary infection; it emphasizes the importance of nephrectomy whenever the condition of the other kidney warrants this step being taken.

Journal of Hygiene, London

30: 267-401 (Aug.) 1930

Systemic Influences in Immunity and Cancer. A. Eastwood.—p. 267.
*Vitamin A Deficiency and Resistance Against Specific Infection. H. C. A. Lassen.—p. 300.
Comparative Biometric Study of Albino and Colored Guinea-Pigs from Point of View of Suitability for Experimental Use. G. W. Dunkin, P. Hartley, E. Lewis-Faning and W. T. Russell.—p. 311.
*Serum Treatment of Scarlatina. M. E. Wylie.—p. 331.
Occurrence, Characteristics and Specificity of Natural Agglutinins. H. J. Gibson.—p. 337.
Beriberi and Other Food-Deficiency Diseases in Newfoundland and Labrador. W. R. Aykroyd.—p. 357.
Acute Bacillary Dysentery in Khartoum Province, Sudan: Bacteriophage Treatment. D. Riding.—p. 387.

Vitamin A Deficiency and Resistance Against Specific Infection.—Experiments made by Lassen showed clearly a pronounced decrease of resistance in rats with symptoms of vitamin A deficiency. Within four days after subcutaneous inoculation with living Breslau bacilli, eight out of nine animals with dietary xerophthalmia died, while eight animals on an adequate diet lived more than thirty-seven days. Necropsy of the control animals reveals that the infection persists in the lymph glands, especially the regional glands, a long time after the general infection has been overcome.

Serum Treatment of Scarlatina.—Wylie reports the results obtained in the treatment of 116 cases of scarlet fever with a commercial concentrated antitoxin. The patients came from all types of homes and represented all grades in the social scale. The medical treatment was essentially the same in all cases In uncomplicated cases patients were allowed up on the twenty-eighth day and dismissed on the forty-second day from the onset of the illness. Complications of the same type were treated similarly The only variable factor in the treatment was the administration or nonadministration of antitoxin or convalescent serum. Twenty-nine patients did not receive serum of any kind Eighty-four patients were treated with the concentrated antitoxin, of whom seventy received 10 cc. of antitoxin and fourteen received from 20 to 30 cc. of antitoxin.

Convalescent serum in doses of from 6.5 to 8 cc. was given in three cases. *The most striking result of the administration* of the antitoxin in the first few days of illness was the rapid clinical improvement as shown by the disappearance of the toxemic symptoms. Vomiting ceased, the throat became less painful, the cervical glands diminished in size, cyanosis disappeared, the rash faded, and moderate desquamation was followed by fine unobtrusive powdering. With the fading of the rash, usually in from six to twelve hours after the administration of serum, there followed a critical fall of temperature, from hyperpyrexia to a subfebrile level, accompanied by a general improvement in the pulse. The patient emerged from the acute stage of the disease to the security of convalescence. The incidence of complications was greater in mild cases which were not treated with antitoxin than in more severe cases treated with 10 cc. of antitoxin. While there is evidence that scarlet fever streptococcus antitoxin has some definite effect in reducing the occurrence of nonseptic complications, there is no evidence that scarlet fever streptococcus antitoxin (*a*) diminishes the occurrence of septic complications, (*b*) delays the onset either of septic or of nonseptic complications, or (*c*) shortens the duration of septic or nonseptic complications.

Lancet, London

2: 383-434 (Aug. 23) 1930

Diabetes as Physiologic Problem. J. J. R. MacLeod.—p. 383.
*Medical Treatment of Cancer. A. T. Todd.—p. 389.
*Rheumatism in Childhood. W. Sheldon.—p. 394
Protein Milk in Infant Feeding. N. Hill and A. W. C. Mellor.—p. 398.
Catheter Extraction of Ureteral Stone per Urethram. E. H. R. Altounyan.—p. 399.
Eclampsia Treated with Spinal Anesthesia: Case. R. H. Paramore.—p. 399.

Medical Treatment of Cancer.—Todd and his associates have been using a combination of lead with selenium in the treatment of cancer. The preparation is available to all, being a 0.4 per cent solution of lead selenide, a nontoxic colloid. As much as 33 cc. has been given in one dose without adverse effects. The size of the initial dose depends on the nature of the neoplasm. The colloid is injected intravenously at weekly intervals. The size of the later injections depends on the amount of focal and general reaction. It is claimed that the treatment has a favorable action in the majority of the cases; it is estimated that in about one fifth of the patients there is *no appreciable result*, but in the remainder more or less improvement is found to follow. Radiation therapy concurrently with selenide is also employed. There have been results which give *promise of this combination being useful. In view of the known* fact that lead tends to be stored in the bones as a compound lead-calcium phosphate, he considered that the patients ought also to be treated with any substance likely to diminish this storage; otherwise any condition associated with acidosis would occasion a liberation of unknown amounts of ionic lead from the skeleton and cause lead poisoning. The obvious remedy was calcium chloride, which was given to all patients daily. In the hope of increasing the assimilation of calcium, patients are given the fat-soluble vitamins. Large doses of vitamin D appear to be really useful when the amount of oily solvent can be tolerated. A small daily dose of thyroid extract is also given, and finally, to combat the anemia usually present in advanced cancer and the anemia occasioned by prolonged injection of lead compounds, they give the patients liver extract. In conclusion, Todd advises that such cancers be treated as are likely to be influenced with radiation first, and as thoroughly as possible. After irradiation is over and the patient has had time to recover, treatment should be instituted by his method. In inoperable cancer as much as possible should be removed by surgical means and afterward one should attempt to make the remainder regress with selenide. Especially he advises giving the treatment after operations which are regarded as having been complete. Finally, he strongly advises that the whole of the method be used: (1) lead selenide to increase local and general defense mechanisms; (2) calcium chloride to increase ionized calcium by acidosis, to correct alkalosis, and to furnish a depot for calcium assimilation; (3) fat-soluble vitamins in large doses, especially vitamin D, to increase calcium absorption and to combat any infective element; (4) small doses of thyroid extract as a tonic and antiinfective agent; (5) liver extract to combat anemia.

Rheumatism in Childhood.—Sheldon states that unless it *can be shown that tonsillectomy* has a definite influence in the prevention of cardiac disease, there seems small justification for the operation merely on the ground that the child is a rheumatic subject. Of 600 consecutive cases of rheumatism at the rheumatic clinic at Great Ormond Street, tonsillectomy has been performed in no less than 540 (90 per cent). Of these patients, 393 were operated on before their admission to the clinic. In approximately one third of the cases of rheumatic pains, chorea and rheumatic fever commenced these symptoms of rheumatic infection after the tonsils had been removed. In addition, the pains continued after the operation in half of 105 children who *had rheumatic pains in the limbs before* the removal of their tonsils; and of 93 children who had chorea before removal of their tonsils the chorea relapsed after the operation in 27 per cent. *Analysis of 266 children with* rheumatic heart disease showed that in 46 cases (17 per cent) the tonsils had been removed before signs of cardiac disease were discovered. It seems more probable that the value of tonsillectomy in rheumatic children is in proportion to the degree of impairment of the general health attributable to the tonsils. In other words, the tonsils of rheumatic children should not be removed unless there is evidence that they are affecting the general health adversely. Such evidence as a history of repeated sore throat, chronic enlargement of the tonsillar glands in the neck, and the appearance of the tonsils must all be taken into consideration. The size of the tonsils alone is an unreliable guide, small scarred tonsils being often as injurious to the child's health as hypertrophied tonsils.

2: 509-560 (Sept. 6) 1930

Synthetic Activities of Animal Cell. H. S. Raper.—p. 509.
Diabetes as Physiologic Problem. J. J. R. MacLeod.—p. 512.
*Lung Puncture in Acute Lobar Pneumonia. D. Stewart.—p. 520.
*Glandular Fever. J. O. W. Bland.—p. 521.
*Apparatus Designed to Diminish Incidence of Postoperative Thrombosis. L. R. Braithwaite.—p. 524.
*Purpura *Simulating Acute Abdomen*. I. Fraser.—p. 525.
Triketohydrindenehydrate as Reagent for Albumin, Peptone and Amino-Acids. H. Gardner.—p. 525.

Lung Puncture in Acute Lobar Pneumonia.—In cases of acute lobar pneumonia without sputum, or with very little sputum, where for therapeutic reasons it is desirable to know the type of organism as soon as possible, Stewart advocates lung puncture. Lung puncture was performed in seventeen cases of acute lobar pneumonia. A pneumococcus was isolated from the "lung fluid" in thirteen out of seventeen cases.

Glandular Fever.—One case is cited by Bland in which inoculation of the blood into a rabbit was followed by a disease which is transmissible to other rabbits by the citrated blood. This disease is characterized by fever, anemia, leukopenia and monocytosis, enlargement of the lymph glands, spleen and liver, and the production of focal necroses in them. The relationship of this disease to human glandular fever is discussed. The name "experimental glandular fever" is *suggested for the disease in* rabbits.

Apparatus Designed to Diminish Incidence of Postoperative Thrombosis.—Braithwaite uses a simple form of gymnastic apparatus. There are three pulleys, one (double) at the head and one each (single) at foot and hand. The apparatus is fixed to the head rail of the bed and is used first on one side and then on the other. A light cord is threaded through the pulleys and there is a means of lengthening or shortening the length of the cord. The stirrup and handle are of soft, well padded canvas. It is used for all abdominal operations, beginning as a rule on the fourth day. Some patients will try it earlier and others cannot and will not use it until later; some will not use it at all. At the beginning the patients can exercise for only about two minutes, but the time soon arrives when they are able to work the apparatus for five minutes at each side. In some cases they enjoy the exercise and will ask for it and work it for longer periods. The idea underlying the exercises is to prevent stagnation of blood, especially in the pelvis and lower part of the abdomen. By pushing with the hand the leg is pulled well up to the abdomen and at the same time good exercise is given to the arm. People who have assiduously carried out these daily "jerks" are not only happier for it while in bed but when the time arrives to get up they are much better able to move about.

Purpura Simulating Acute Abdominal Conditions.—In one of Fraser's cases a diagnosis of intussusception was made. Free fluid was found in the peritoneal cavity, and the intestinal wall and mesentery were studded with petechial hemorrhages and ecchymosed patches. Careful examination later revealed many minute small hemorrhagic points which had escaped notice with artificial light. These pinpoint hemorrhages were more marked during the convalescent period. In the other the diagnosis was acute gangrenous appendicitis. At operation a large quantity of nonpurulent blood-stained fluid escaped. The last *two feet of the ileum were brilliant scarlet and showed numerous* small black areas of hemorrhage. The intestinal wall was markedly thickened with the blood contained in the tissues. The hemorrhage stopped more or less abruptly at the ileocecal valve, leaving the cecum almost normal. The appendix was normal in every respect except that it contained a rich supply of threadworms. The rest of the ileum was mottled, the mottling gradually decreasing toward the jejunum. There were several enlarged mesenteric glands, some soft and others calcified. An examination of the abdominal viscera through this limited incision failed to reveal any further pathologic change. For *three or four days after the operation the motions were mixed* with dark blood, and on the third day the urine was heavily tinged with blood. The postanesthetic vomit contained blood and the saline solution returned after operation was tinged. On about the tenth day she had a severe attack of epistaxis, and about the same time a marked purpuric rash appeared, involving both feet and the outer sides of the ankles. This was so severe that the feet were almost blue. There was also considerable swelling of the ankles.

Annales de l'Institut Pasteur, Paris

45: *157-289 (Aug.) 1930*

Healing of Necrotic Lesions Produced by Large Inoculations of B C G. J. Zeyland.—p. 157.
Biologic Properties of B C G Strain. M. Tzeknovitzer.—p. 162.
*Bacillus Gangrenae-Cutis. R. Nativelle.—p. 169.
Antagonistic Action of Alexin in Phenomena of Agglutination. V. Anthadse.—p. 203.
Sodium Salt of Acetarsone in Treatment of Human Trypanosomiasis. A. Sicé.—p. 221.
Endoglobular Corpuscles in Blood of Lizards. G. Mirone.—p. 243.
*Zinc Content of Animal Bodies. G. Bertrand and Y. Beauzemont.—p. 247.
Critical Temperature of Serum. P. Lecomte du Nouy.—p. 251.

Bacillus Gangrenae-Cutis.—Nativelle describes *Bacillus gangrenae-cutis*, first studied by Milian, which occurs with great frequency in many primary and secondary disseminated cutaneous gangrenes, in genital gangrenes and in scabs from various sources and in ulcers of the leg. While not usually the sole cause of gangrene, this bacillus is an important secondary germ of infection and often causes simple lesions and ulcers to develop into gangrene. Intravenous injections of arsphenamine counteract the action of the bacillus and have a curative effect on the gangrene itself.

Zinc Content of Animal Bodies: Age Variations: Influence of Milk Diet.—Bertrand and Beauzemont proved through experiments on seventy-one white rats that the proportion of zinc in the bodies of animals decreases from the time of birth to weaning because of the deficiency of zinc in the milk diet. The zinc content then increases throughout the period of rapid growth and remains constant in adults. In old age it again shows an increase.

Annales des Maladies Vénériennes, Paris

25: 561-640 (Aug.) 1930

Antichancroid Bacteriophagia. H. Gougerot, E. Peyre and Basset.—p. 561.
Cultivation of Streptobacilli of Ducrey. A. Basset.—p. 569.
*Test for Presence of Gonococcal Antigen in Urine. N. M. Ovtchinnikov and E. M. Sémeniako.—p. 577.

Test for Gonococcal Antigen in Urine.—Ovtchinnikov and Séméniako discuss the value of the test for the presence of gonococcal antigen in urine as determined by the complement fixation reaction developed and used by Lissonsky in testing for tuberculous infection. Observation of several hundred cases shows that this reaction is a valuable auxiliary method of diagnosis, especially in determining the moment of disappearance of infection during the course of treatment. A + or a + + reaction obtained only once, however, does not necessarily mean that gonorrhea is present; the reaction is not constant, and two or three tests are necessary for infallible results.

Journal de Chirurgie, Paris

36: 1-160 (July) 1930

*Methods of Restoring a Thumb. R. Gueullette.—p. 1.

Methods of Restoring a Thumb.—Gueullette gives the following classification of standard methods of restoring a thumb: (1) methods that utilize remaining parts of the mutilated hand, either phalangization of the first metacarpal or making the index finger a thumb; (2) methods of digital transplantation, using either a big toe or a finger of the other hand, and (3) methods of reconstruction that include successive cutaneous and osseous grafting (Nicoladini-Pierce method), simultaneous cutaneous and osseous grafting (Neuhauser-Albee method), and simultaneous cutaneous and osseous grafting after *preliminary transplanting of the osseous tissue* ((Schepelmann-Cotte method). The deciding factor in choosing the method to use is the social and economic status of the patient and the way the thumb will be used. For the hand of a workman a solid, strong thumb is important with no particular need for flexibility at the end, especially if the metacarpal is left. The Nicoladini-Pierce method seems best suited for this purpose. However, if the thumb is not to be used for labor and esthetic considerations enter into the decision, the most satisfactory results will be obtained by the grafting of a big toe. This will give a more natural looking and flexible thumb than the Nicoladini-Pierce method, although it will not be as solid.

Paris Médical

2: 157-168 (Aug. 23) 1930

Clinical and Therapeutic Classification of Rheumatic Pneumopathies. G. Caussade and A. Tardieu.—p. 157.
Actinotherapy of Wounds and Burns. P. Lemariée.—p. 161.
*Pathogenesis of Cardiac Accidents in Toxic Adenoma of Thyroid and in Exophthalmic Goiter. R. Froyez.—p. 164.

Cardiac Accidents in Toxic Adenoma of Thyroid.—Froyez says that experiments on animals, made by himself and others, show that disturbances in the thyroid secretion, especially its iodine content, affect the cardioregulatory system. However, the persistent arrhythmic conditions found in toxic adenoma of the thyroid and in exophthalmic goiter are due to some myocardial lesion.

Presse Médicale, Paris

38: 1137-1152 (Aug. 23) 1930

Urea Content of Blood and Ambard's Formula in *Diabetes Mellitus*. M. Labbé, R. Boulin and Justin-Besançon.—p. 1137.
*Infantile Asthma, Pruriginous Dermatoses and Hepatic Insufficiency: Infantile Arthritism Syndrome. H. Jumon.—p. 1138.
Causes of Onset of Labor. J. Fontes.—p. 1140.

Infantile Asthma, Pruriginous Dermatoses and Hepatic Insufficiency: Infantile Arthritism Syndrome.—Jumon says that asthma, certain pruriginous dermatoses and hepatic disturbances in young children form a homogeneous *clinical* ensemble. Although they never appear simultaneously, two or three often appear successively or even alternately in the same child and have the same pathogenesis, consisting of an alteration of *nutrition, either hereditary or acquired*, which predisposes the organism to factors otherwise harmless. This causes an instability of the body fluids and of the neurosympathetic system which reacts specifically in asthma, dermatoses or hepatic disturbance. These reactions are benign and tend to disappear before the age of 8 or 10 years. General methods of treatment which improve the alimentary system, and attention to diet and climatic conditions, produce the best curative results. The syndrome of this entire group of reactions may be termed the "infantile arthritism syndrome." In general, the successive appearance of two or more of these diseases in the same child is indicative of the source of the condition.

38: 1153-1168 (Aug. 27) 1930

*Ileus Reflex in Course of Renal and Ureteral Lithiasis. D. Denechau and R. Prieur.—p. 1153.
Colorimetric Quantitative Determination of Nitrogen in Blood Serum: micromethod. A. Cassuto.—p. 1155.

Ileus Reflex in Course of Renal and Ureteral Lithiasis.—Denechau and Prieur point out the importance of distinguishing the ileus reflex in the development of renal and ureteral lithiasis from similar disturbances due to appendicitis, peritonitis and other sources. The principal symptoms to be observed are the sudden, violent beginning of the condition with intense pain in the abdomen (usually on the right), vomiting, intestinal retention and dysuric disturbances, and distention of the abdomen. The urine usually contains albumin, crystals of uric and oxalic acid and erythrocytes. The condition is caused by the penetration of a calculus into the ureter, which irritates the perirenal ureteral plexus and by the mesenteric nerves causes a reno-intestinal reflex, sometimes with spasmodic contraction. Relief is felt when gas and feces are expelled from the intestine, together with the calculus itself. The entire evolution of the disturbance rarely exceeds ten or twelve days. The secret of treatment is abstinence from operation, since intervention is always useless and often causes fatal results and the disease is sure to terminate in normal evacuation of the intestine in a few days. Palliative treatments to relieve pain and to stimulate normal intestinal action are recommended.

Revue Française de Gynécologie et d'Obst., Paris

25: 497-544 (Aug.) 1930

Internal Version in Cases of Cephalic Presentation with Pelvis Contracted at Inlet. J. Vanverts.—p. 497.
*Death of One Twin in Course of Gemellary Pregnancy. E Aburel.—p. 510.

Death of One Twin in Course of Gemellary Pregnancy.—Aburel says that when some pathologic factor, as the presence of syphilitic or tuberculous infection, causes the death of one fetus, the reduced intensity and slow development of the infection often allows the other fetus to develop normally. The unequal resistance of the two twins is due to an accidental knot or loop in the cord or to malformation. When death takes place shortly before term, the diagnosis of gemellary pregnancy is obvious. When death occurs earlier, however, excessive nausea and vomiting, as well as the fact that the uterus is unusually large at first, seeming to indicate gemellary pregnancy, and then tends to resume normal developments, with diminution of the fetal movements, are important pathognomonic indications. After the rupture of the membranes the amniotic fluid is chocolate colored from the macerated dead fetus. Delivery is usually normal and a little before term. The living twin usually is born first. In case of cesarean section it is necessary to ascertain by touch which is the living twin (the dead fetus is softer). The results of confinement are usually good. The living twin rarely suffers from the infection that killed the other twin and is normal in development.

Revue Neurologique, Paris

2: 1-192 (July) 1930

Subacute Necrotic Myelitis: Anatomic and Clinical Considerations. L. van Bogaert, R. A. Ley and F. Brandes.—p. 1
*Cerebral Tumors as Cause of Epilepsy. E. Moniz.—p. 18.
Opportunity for Suboccipital Drainage in Certain Endocranial Injuries. F. Ody.—p. 28.

Cerebral Tumors as Cause of Epilepsy.—Moniz says that cases of epilepsy that do not yield to ordinary methods of treatment, especially if they are of long duration and show jacksonian characteristics, are often due to cerebral tumors. Four cases are cited. In such cases roentgen examination reveals the presence of calcified tumors. If roentgen examination gives no results, arterial encephalography may be practiced to determine the presence (or absence) of tumors that do not produce opacity to roentgen rays.

Policlinico, Rome

37: 1129-1164 (Aug 4) 1930. Practical Section

*Symptomatic and Spontaneous Meningeal Hemorrhages. V. Cavalletti.—p. 1129.
"Surgical Abdomen" Due to Impalement: Case. E. Capecchi.—p. 1133.
Introflexed Sutures G. Baggio.—p. 1135.

Symptomatic and Spontaneous Meningeal Hemorrhages.—Cavalletti reports five cases of meningeal hemorrhages and makes certain observations on their symptomatology and pathogenesis. The treatment can be only symptomatic. The prognosis is favorable. Lumbar puncture aids in establishing the diagnosis and is, at the same time, the preferable form of treatment.

37: 309-360 (July 15) 1930. Surgical Section

*Primary Tumors of Liver. M. Ascoli.—p. 309.
*Hypernephroid Tumors of Kidney. G. Cicala.—p. 331.

Primary Tumors of Liver.—Ascoli analyzes the clinical histories of sixteen patients admitted to the Clinica chirurgica of Rome with a diagnosis of primary tumor of the liver. Two cases involved hepatic gummas; four, sarcomas; six, epitheliomas; one, a lymphangio-endothelioma; one, a cavernoma, and in two cases the diagnosis was only clinical. The malignant tumors have a rapid course, characterized by fever, pains, marked enlargement of the liver and ascites. The epitheliomas (chiefly hepatomas) occur in advanced age, while the sarcomas develop nearly always before the age of 40. In the cases of malignant tumors, one found in the history of the patients chronic inflammatory and degenerative lesions of the liver, sometimes also echinococcus cysts. The author discusses also the special diagnosis of gummas and hepatic abscesses.

Hypernephroid Tumors of Kidney.—Cicala points out that large benign tumors of the kidney present the greatest diagnostic difficulties and in most cases are diagnosed only at the operating table. In any case in which the diagnosis appears for various reasons doubtful, recourse should be had to exploratory laparotomy, the patient being prepared and everything being made ready for whatever operative act proves to be necessary. It should always be kept in mind that hypernephroid tumors are of long duration and occur almost always in adults, whereas sarcomas are more frequent in young persons, and mixed tumors more frequent in children. The prognosis in hypernephromas is exceedingly grave. Nephrectomy gives rarely good remote results. Recurrences are not infrequent. Only early interventions furnish hope of a radical recovery: yet early treatment is only rarely applicable. Patients often refuse to submit to an operation because of fear and because their symptoms undergo a temporary attenuation and they hope for a recovery without operation. Sometimes their medical advisers confine themselves to prescribing useless direct symptomatic remedies to combat the most alarming symptom—hematuria, which, as is well known, by reason of its periodic nature, reappears at long intervals, during which the patient enjoys perfect well being. All this causes a grave postponement of surgical intervention and makes the prognosis still more unfavorable. If a hypernephroma is diagnosed, nephrectomy should be done soon, for a good outcome, and especially the remote results, depend on an early operation. The contraindications result solely from the inevitable complications of cases tardily diagnosed (massive adhesions; paravertebral, axillary, inguinal or bone metastases). Cachectic or anemic appearance, varicocele or the large volume of the tumor does not, however, constitute a contraindication. The author prefers the extraperitoneal method of nephrectomy. He advises against routine removal of the suprarenals in all cases, as advocated by Grégoire—he recommends removal only when they are invaded by the tumor. The chief causes of death after the intervention are shock, hemorrhage, pulmonary embolism and reflex anuria. Recurrences develop (if at all) usually during the first year after the operation—either in the crater itself or in adjacent tissues. There may be metastases in distant organs, especially in cases coming late to operation.

Riforma Medica, Naples

46: 997-1032 (June 23) 1930

Vertebral Arthritis and Trauma. V. Putti.—p. 999.
Hypochloremia. C. Achard.—p. 1005.
*Medullary Lymphoblastic Leukemia. D. Liotta.—p. 1011.

Medullary Lymphoblastic Leukemia.—Liotta points out particularly that his case is significant because of the absence of active participation of the lymph nodes and of the spleen in a type of lymphoblastic leukemia and because the proliferating tissue remained localized exclusively in the myeloid organs, which justifies, according to Aubertin, the term "genuine medullary leukemia."

46: 1033-1068 (June 30) 1930

*Uricacidemia in Diabetes Mellitus. S. de Candia.—p. 1035.
Diaphragmatic Hernia. A. D'Istria.—p. 1037.
Algias and Their Treatment. F. Negro.—p. 1046.

Uricacidemia in Diabetes Mellitus.—De Candia states that hyperuricacidemia in diabetes mellitus signifies a disturbance of purine metabolism, although some authors, when it is not accompanied by true gouty symptoms, regard it as sometimes a simple functional and not always a pathologic alteration of the mechanism of the production and elimination of uric acid. Likewise, the low values of the uric acid in the blood circulation observed in some of his patients with grave diabetes must be interpreted as an alteration of purine metabolism, caused probably by a functional paralysis of the organ cells and by the retardation of the intra-organ oxidative processes, especially the liver. His results agree with those of Giorgi regarding the diminished elimination of uric acid in the urine in grave diabetes.

46: 1069-1108 (July 7) 1930

*Polypeptidorrhachia. N. Fiessinger.—p. 1071.
Organic and Functional Forms of Spasms and Tics. G. Colucci.—p. 1073.
Autochthonous Leprosy and Leprosy Contagion. A. de Amicis.—p. 1081.

Polypeptidorrhachia.—From his research, Fiessinger concludes, in harmony with Léon Michaux and Maurice Herbain, that polypeptides may be found in the cerebrospinal fluid. These large molecules are of local origin or are from the blood. The passage of fluid between the blood and the spinal fluid does not occur in accordance with any constant laws of diffusion. Polypeptidorrhachia may accompany cerebral symptoms, bulbar symptoms or meningeal symptoms. These toxic syndromes are more accentuated, the greater the increase in polypeptides with respect to the total nonprotein nitrogen. The syndromes affect hepatic and renal insufficiency, which directly or indirectly produce the insufficiency of cleavage of the polypeptides. The influence of polypeptides on meningitis of toxic origin may henceforth be admitted. The meningeal reaction should not be considered the absolute and constant result of the polypeptidorrhachia, but in certain conditions it appears to the author as the dominant disturbance and the expression of the preponderant intoxication. The author regards his brief considerations on polypeptidorrhachia merely as a preliminary study.

Tumori, Milan

4: 301-402 (July-Aug.) 1930

Temperature of Neoplastic Tissues: Thermo-Electrical Measurements and Diagnostic Considerations. L. Barelli.—p. 301.
Provocation and Nature of Antineoplastic Forces. G. de Gaetani.—p. 334.
Lipomas of Spinal Meninges. I. Furiosi.—p. 350.
*Reaction in Vicinity of Neoplasms. A. Slaviero.—p. 359.

Reaction in Vicinity of Neoplasms.—Slaviero examined thirty-five malignant tumors for the purpose of studying possible inflammatory reactions in the involved area. After finding a constant inflammation and examining and interpreting the various elements, he thinks the manifestations are the expression, on the part of the organism, of an attempt to defend itself against the neoplasm.

Archivos Españoles de Pediatría, Madrid

14: 321-384 (June) 1930

*Toxicity of Viosterol. R. Garelly.—p. 321
Treatment of Rickets with Viosterol: Roentgen Changes. J. L. Morales.—p. 336.
Climatotherapy in Bronchopulmonary Processes in Children. C. Sainz de los Terreros.—p. 372.

Toxicity of Viosterol Used in Rickets in Infants.—Garelly has obtained good results with the administration of viosterol in the treatment of rickets. The degree of toxicity of viosterol, however, is not yet well determined and hence the advisibility of great care in the dose and administration of the drug. In cases in which it is necessary to administer the drug for a long time, the calcium and phosphate contents of the blood should be frequently determined as an index for the continuance or the stopping of the treatment. The author has never observed toxic phenomena caused by the administration of the drug. He has observed lack of appetite and dyspeptic disturbances as a result of the treatment. As soon as the disturbances appeared, the dose of the drug was temporarily diminished and then slowly increased, without the reappearance of the deleterious effects. The method that has given the author the best results is the following: The treatment is started with a dose smaller than that which is generally advised, and slowly increased (in accordance with the general condition of the infant and with the particular condition of his intestine), until reaching the proper dose (either prophylactic or curative dose).

Semana Médica, Buenos Aires

37: 77-152 (July 10) 1930. Partial Index

Fistula of Esophagus Following Mediastinal Pleurisy. M. Acuña and S. I. Bettinotti.—p. 96.
*Carbuncle in Diabetic Persons. R. Rodríquez Villegas.—p. 98.
Grave Hemorrhages as Complication of Gastric and Duodenal Ulcers. M. Cieza Rodriguez.—p. 101.
Syncytioma Malignum: Two Cases. E. L. Vila and G. F. Nunes.—p. 105.
Aplasia of Humerus and Exaggeration of Angle of Torsion: Case. O. F. Mazzini.—p. 108.
Hypertoxic Destructive Hydatidiform Mole: Case. A. I. Sosa y Sánchez and L. Rosenwasser.—p. 113.
Traumatic Spondylitis with Permanent Disability as Late Result of Accident. A. A. Masciotra.—p. 115.
*Exsiccated Alum for Permanent Dressings for Fractures, Dislocations and Diseases of the Joints. L. Benatuil.—p. 121.
Atropinized Charcoal in Treatment of Spastic Constipation and Other Diseases of Digestive Tract. Lefevre.—p. 133.

Carbuncle in Diabetic Persons.—Rodríquez Villegas says that carbuncles in diabetic persons should be removed early. Excision should include not only the necrotic area but also the area of subcutaneous cellulitis. Carbuncles in diabetic persons should be divided into two large groups thus: (1) benign or small lesions, similar to a union of furuncles, in which pain and edema are not intense and which as a rule develop in patients with benign diabetes, and (2) carbuncles of rapid development with intense pain and marked edema, which present a wide area of central necrosis and cause serious general disturbances, and which as a rule develop in patients with grave diabetes, who are generally obese and more than 50 years of age. In patients of the first group, treatment including cauterization with the actual cautery, passive hyperemia, phenolated fomentations, vaccinotherapy and roentgen rays may be sufficient. At the same time the progress of the diabetes should be determined frequently. If the patient does not improve under the treatment, excision should be resorted to. In grave cases of the second group, immediate and wide resection of the pathologic area, including the limits of the pyogenic infiltration of the cellular tissues, should be made. The author reports two cases: one of benign diabetes and acidosis due to the carbuncle and one of stationary diabetes reactivated by the development of the carbuncle. In both cases after an insufficient resection of the affected area a diffuse cellulitis dominated the clinical picture and necessitated a second intervention. Recovery ensued in both cases.

Exsiccated Alum for Dressings for Fractures and Diseases of Joints.—Benatuil prepared a mixture of 1,000 Gm. of exsiccated alum and 500 cc. of water to be used instead of plaster of paris, in making permanent dressing for fractures, dislocations and diseases of the joints. The substance transmits roentgen rays and solidifies twenty minutes after its application. After the dressing has been applied and before solidification of the mixture takes place, a roentgenogram may be made to determine whether the bones are in the proper position: if they are not, the dressing (which is still wet) may be removed and another attempt at reduction may be made.

Siglo Médico, Madrid

86: 29-56 (July 12) 1930

*Specificity of Streptococcus in Scarlet Fever, Erysipelas and Puerperal Fever. M. Salazar.—p. 29.
Anthropometry of School Children in Spain. D. E. Naval Galindo.—p. 30
Psychiatric Legislation for Care of Persons with Psychoses. J. M. Sacristan, G. R. Lafora and J. Escalas Real.—p. 32.

Specificity of Streptococcus in Scarlet Fever, Erysipelas and Puerperal Fever.—Salazar says that the toxins of erysipelas and of puerperal fever cause a local skin reaction similar to that caused by the Dick test in scarlet fever. With the toxins of erysipelas or of puerperal fever, antitoxic serums, highly specific against the given infection, may be prepared. These serums cause the agglutination of the respective streptococcus. The discovery of the specificity of the toxins of scarlet fever, of erysipelas and of puerperal fever has resulted in a definite advance in the diagnosis and therapy of these serious infections. By means of dermic reactions, susceptibility to the infections may be discovered and by the proper use of the suitable specific serums the diagnosis, the prophylaxis and the cure of these streptococcal infections may be obtained. The efficacy of specific serums is surprising and their superiority over polyvalent serums has been demonstrated. Each one of the three infections should be treated with the specific corresponding serum to obtain the exclusive action of the serum against its homologous toxin.

Deutsche medizinische Wochenschrift, Berlin

56: 1203-1246 (July 18) 1930

Criticism of Provocative Test for Gonorrhea. A. Stuhmer —p. 1203
Shiga-Kruse Bacillus and Its Heterogenetic Antigen. B. Brahn and F. Schiff.—p. 1207.
Indications for Existence of Sympathetic Center for Blood Regulation K. Moser.—p. 1209.
Relation Between Hypophysis and Hypertension. W. Hirsch.—p. 1211.
*Treatment of Meningitis During Epidemic in Shanghai. A. Virnich. —p. 1212.
Hyperthermy Treatment by Means of Paraffin in Rheumatic Diseases. H. J. Broichmann.—p. 1214.
Alleviation of Pain During Parturition. Frankenstein.- p. 1216.
*Treatment of Anemia in Children. H. Rau.- p. 1217.

Treatment of Meningitis During Epidemic in Shanghai.—During the meningitis epidemic in Shanghai, the intraspinal injection of polyvalent antimeningococcus serum brought favorable therapeutic results. In severe cases, lumbar puncture was at first done every day. Immediately after the puncture the serum was injected in a quantity somewhat smaller than the quantity of cerebrospinal fluid withdrawn. The serum injection never exceeded 25 cc. During the beginning stage this method of treatment was repeated every day. Later it was repeated after intervals of from two to three days, according to the severity of the case. In some patients the total amount of serum injected intraspinally reached 220 cc. On the days on which the spinal injections were omitted, the serum was injected intramuscularly. Virnich asserts that the administration of large quantities of serum did not lead to complications. He thinks that the low mortality rate was the result of the serum therapy. When the supplies of serum ran short, intravenous injections of methenamine were administered but this form of treatment was less effective than the serum therapy.

Treatment of Anemia in Children.—Rau states that among children the secondary anemias are more frequent than the primary forms. According to their etiology he classifies the forms of secondary anemia into alimentary, infectious, postinfectious, constitutional and helminthic. In discussing the therapy he stresses the value of a correct diet, administration of iron preparations, liver diet and blood transfusions. In many instances diet alone will counteract the anemia. Inorganic iron preparations are likewise effective in many instances. When liver therapy becomes necessary the liver should be given in the form of extracts, because in this form it is most easily taken by children. Blood transfusion is the most effective method, but even this is not helpful in all instances. In most cases it is difficult to decide which treatment will bring the best results. Accordingly, the author recommends that liver extracts and iron preparations be given simultaneously and in severe cases blood transfusion should also be employed. This combination therapy gives better results than if each method is employed alone.

56: 1291-1334 (Aug. 1) 1930

Peroral Immunization. H. Lubinski.—p. 1291.
Negative Results of Friedmann's Tuberculosis Vaccine in Treatment of Children with Tuberculosis. H. Fernbach.—p. 1295.
Ten Years' Experiences with Friedmann's Tuberculosis Remedy. Gettkant.—p. 1298.
Reflections on Fatal Results of Vaccination with Calmette's B C G in Lübeck. E. Friedberger.—p. 1300.
Principles of Infant Feeding. E. Stettner.—p. 1303. C'cn.
*Treatment of Suppurative Meningitis. W. Mann.—p. 1306.
Serious Complications Caused by Intra-Uterine Pessaries. K. Tietze. —p. 1307.

Treatment of Suppurative Meningitis.—Mann points out that the prognosis in suppurative meningitis is still unfavorable. Numerous therapeutic methods have been employed; namely, lumbar puncture, administration of serum, protein therapy, serotherapy, and treatment with a solution of methenamine. The latter method, however, may cause complications in the central nervous system. Another treatment that has been employed successfully by several authors is the irrigation of the subarachnoid space following lumbar puncture, by means of physiologic solution of sodium chloride or Ringer's solution. Irrigations after suboccipital puncture have also been recommended. In some cases irrigations through the lumbar puncture might prove sufficient. However, in severe cases irrigations through the suboccipital puncture are necessary. The latter procedure permits a closer approach to the focus of suppuration, which is usually at the base of the brain, and it also prevents or counteracts adhesions. But because suboccipital puncture is more dangerous than lumbar puncture, it should be employed only if absolutely necessary. In most cases the irrigation has to be repeated every day or every second day. The author reports the results of irrigation treatment in three severe cases of suppurative meningitis. In all instances the cerebrospinal fluid became clear. In two instances the irrigation by means of lumbar puncture did not prove sufficient, and adhesions developed on the foramen magnum. In one of the cases the adhesions were overcome by irrigations through a suboccipital puncture. In the other case, in which suboccipital puncture had not been resorted to, the adhesion led to a fatal outcome. It was also found that the cerebrospinal fluid that was obtained by suboccipital puncture showed greater pathologic changes than the fluid that was obtained by lumbar puncture. Specimens of cerebrospinal fluid that had been obtained during the period of recovery always showed a spider-web coagulation from two to four hours after extraction. This proves that the sign is not pathognomonic for tuberculous meningitis.

Klinische Wochenschrift, Berlin

9: 1433-1480 (Aug. 2) 1930

Pathogenesis of Icterus Neonatorum. E. Volhard.—p. 1433.
Observations on Nutritional Allergy of Skin During Childhood. P. György, E. Moro and E. Witebsky.—p. 1435.
Preparation of Female Sex Hormone by Means of Precipitation. B. Zondek and C. van Eweyk.—p. 1436.
Operative Modification of Sugar Metabolism. F. Depisch, R. Hasenöhrl and L. Schönbauer.—p. 1437.
Significance of Thyroid for Metabolism in Cold-Blooded Animals, Especially in Frogs. H. Henschel and M. Steuber.—p. 1442.
*Treatment of Anemia in Children by Means of Bone Marrow Preparation W. Borchardt.—p. 1443.
*Attempt at Roentgen Treatment in Chronic Encephalitis. E. Trautmann and H. Pansdorf.—p. 1444.
*Serious Complications Following Treatment of Hernia by Means of Alcohol Injections. R. Goldhahn.—p. 1447.
Significance of Copper in Pathogenesis of Cirrhosis of Liver. R. Schönheimer and W. Herkel.—p. 1449.
*Lymphoid-Cell Sore Throat, Acute Lymphoidocytic Leukemia and Agranulocytosis. P. Lindemann.—p. 1451.

Treatment of Anemia in Children by Means of Bone Marrow Preparation.—On the basis of his experiences with red marrow from the ribs, which proved effective in experimental secondary anemia (*Deutsche med. Wchnschr.* **56:**521 [March 28] 1930; abstr. The Journal, June 14, 1930, p. 1962), Borchardt employed a bone marrow preparation, containing not only the hematopoietic factor but also the entire calcium of the bone, in the treatment of thirty-five anemic children, who were inmates of an orphan home. The hemoglobin content and the number of erythrocytes was low and some of the children were underdeveloped, had swellings of the cervical lymph nodes, had blepharitis and were pale. Their ages varied between 3 and 14 years. These anemic children were given a teaspoonful of the bone marrow preparation three times daily. The treatment was continued from December until March. The hemoglobin content, the number of erythrocytes and the body weight were determined weekly and a considerable improvement was noted. In several other inmates of the orphan home, who likewise were anemic and in poor health but who had not received the bone marrow preparation, improvement was hardly noticeable.

Attempt at Roentgen Treatment in Chronic Encephalitis.—Because irradiation with roentgen rays has been effective in many inflammatory processes, Trautmann and Pansdorf employed it in six cases of chronic encephalitis. The rays were applied on three fields, two temporal and one occipital. The distance was 40 cm. and the quantity was 10 per cent of a unit skin dose. A 0.5 mm. copper filter was used. The intervals between the irradiations were usually four days. The authors give the case histories of the six patients who were treated in this manner. In none of the cases was improvement noted.

Accordingly the authors conclude that in cases of chronic encephalitis roentgen treatment is not effective. This indicates that inflammatory processes in the brain differ from inflammations in other organs. The authors assume that the efficacy of roentgen rays in inflammations outside the central nervous system are due to their mobilizing effect on the function of the supporting tissue; their inefficacy in inflammations of the brain is due to the fact that the glia cells do not react to the roentgen rays like other supporting tissues.

Complications Following Treatment of Hernia with Alcohol Injections.—Goldhahn describes three cases of hernia in which alcohol injections caused serious complications, such as sepsis, fecal fistulas and injury of the vas deferens. Other authors observed ileus and gangrene of the testes following alcohol injections. Occasionally it might be possible to close a small hernial opening by the injection treatment. However, the results are doubtful and, in view of the serious complications that might result, alcohol injections should no longer be employed for treatment of hernia. Because some physicians still employ this "nonsurgical" method, the author considers it necessary that the medical press should warn against it.

Relation Between Diseases of Blood and Diseases of Mucous Membrane of Mouth.—Lindemann directs attention to the correlation between diseases of the blood and diseases of the mucous membrane of the mouth. He mentions the soreness of the tongue in pernicious anemia. Then he reports the clinical histories of three patients who showed such symptoms as sore throat, soreness of the tongue and soreness of the gums. Careful examination of the blood revealed abnormal conditions. In the conclusion the author stresses that a blood count is advisable whenever inflammations in the pharyngeal region show some unusual aspects.

9: 1481-1528 (Aug. 9) 1930

Static Effects of Pharmaceutic Preparations Necessary to Influence Pathologic Reaction of Organism. H. Langecker.—p. 1481.
Interference in Vasomotor Regulation. H. Rein.—p. 1485.
*Modification of Basal Metabolism by Thymus and Spleen Extracts. M. Schneider and A. Nitschke.—p. 1489.
Action of Hormonal Preparation from Anterior Lobe of Hypophysis on Male Genitalia. E. J. Kraus.—p. 1493.
*Pulmonary Foci in Lymphogranulomatosis. E. Saupe.—p. 1495.
Method for Testing Function of Stomach. L. Dinkin and Z. Lichtig.—p. 1499.
Criticism of Microdetermination of Nitrogen-Containing Substances in Urine. D. Jacoby.—p. 1501.
Experiments Contradicting Guanidine Theory of Tetany. G. Berencsy and K. Zinhobel.—p. 1503.
Tests for Demonstration of Cancer Lysin in Blood Serum of Patients with Cancer. H. Lehmann-Facius.—p. 1504.

Modification of Basal Metabolism by Thymus and Spleen Extracts.—In the first part of the article, Schneider and Nitschke review the observations of various authors on splenectomized and on thymectomized animals. They further report that Nitschke succeeded in extracting from the thymus two substances, of which the one effected a decrease in the calcium content of the blood of rabbits and the other reduced the inorganic phosphorus content. The substances were detected also in the spleen and in the lymph nodes; that is, in the entire lymphopoietic system. In other organs, however, they could not be found. In order to determine whether extracts from the spleen and thymus influence the basal metabolism, the authors made tests on guinea-pigs. Experiments with the substance that reduces the calcium content of the blood proved that it has no influence on the basal metabolism. However, the extract that reduces the phosphorus content, and which is extracted from the spleen and thymus by means of acetic acid-alcohol and ether, decreased the basal metabolism not only in normal animals but also in those in which the basal metabolism had been increased by means of thyroxine. The average reduction was 22.9 per cent. The thymus and spleen extracts used for the experiments contained neither proteins nor fats. The injections were given subcutaneously. Control experiments were made with liver and muscle extracts, hypertonic solutions of sodium chloride and other extracts. However, an influence on the basal metabolism was not observed.

Pulmonary Foci in Lymphogranulomatosis.—Saupe maintains that the pulmonary foci in lymphogranulomatosis are not as rare as is assumed by many authors. As proof he cites his observations on ten patients and reports by other authors. However, he admits, and by that confirms the statements of other authorities, that pulmonary foci of lymphogranulomatosis are only rarely diagnosed roentgenologically because other pathologic processes show similar roentgenograms. Cancer of the hilus of the lung with large mediastinal metastases gives almost the same roentgenogram as pulmonary lymphogranulomatosis. However, the bilateral broadening of the mediastinum speaks more for lymphogranulomatosis, the unilateral broadening more for cancer of the hilus. Lymphogranulomatosis of the lung is often accompanied by pleuritic exudates or transudates and by bronchopneumonic processes, and these conditions mask the lymphogranulomatosis and it is not recognized in the roentgenogram. The author also discusses the relation between pulmonary tuberculosis and lymphogranulomatosis. In one case reported by him there existed a disseminated pulmonary tuberculosis and the mediastinal lymph nodes were affected with lymphogranulomatosis. However, there were no granulomas in the lungs. Regarding the therapy of lymphogranulomatosis, the author states that roentgen irradiation often brings improvement. However, it is usually only temporary. Postmortem examinations proved the frequency of bone involvement in lymphogranulomatosis.

Medizinische Klinik, Berlin

26: 1139-1174 (Aug. 1) 1930

Occlusion of Coronary Arteries. W. Koch.—p. 1139.
Treatment of Acute Nontuberculous Pleural Empyema. F. Smoler.—p. 1142.
*Irradiation of Body Cavities by Means of Ultraviolet Rays Produced Therein. S. Westmann.—p. 1146.
*Pathogenesis and Therapy of Tuberculous Hemoptysis. H. Edel.—p. 1148.
Panagglutination in Agranulocytic Reaction. W. Hochheim and G. Rosenthal.—p. 1150.
Treatment in Weakness of Uterine Contractions and During Placental Stage. H. Krukenberg.—p. 1150.
Ehrlich's Diazo Reaction After Roentgen Irradiation in Lymphogranuloma. K. Tschilow.—p. 1151.
Malformation of Kidneys. R. Rittmann.—p. 1153. C'cn.
Blood Groups Among Patients with Leprosy in Latvia. M. Weidemann.—p. 1155.

Irradiation of Body Cavities by Means of Ultraviolet Rays Produced Therein.—Westmann points out that attempts have been made to irradiate the body cavities with ultraviolet rays. In order to introduce the rays, quartz mirrors were used; but, as this method proved unsuccessful, an instrument was perfected that would produce the ultraviolet rays within the body cavity. The apparatus consists of a bipolar spark-gap that is enclosed in a quartz tube. Quartz is likewise used for insulation of the conducting wires. The author gives illustrations and a detailed description of the instrument. The efficacy of the instrument was tested on animals. In the conclusion the author mentions conditions in which the instrument might prove of therapeutic value.

Pathogenesis and Therapy of Tuberculous Hemoptysis.—Edel discusses two forms of hemoptysis. To the first group belong the minor hemorrhages that usually continue for longer times and in which the blood does not escape from ruptured vessels but rather by diapedesis. To the second group belong the fulminant hemoptyses, which result from the rupture of aneurysmal pulmonary vessels. The first group may be due to various factors, to an increased permeability of the capillary walls, to toxic injuries, to sympathetic or incretory disorders, to inflammatory hyperemia and to meteorological conditions. In the diapedesis hemorrhages there generally exist serious pneumonic or productive, nonshrinking processes. The profuse fulminant hemorrhages usually occur when large parts of the lung contract as the result of chronic processes. The vessels become constricted by compact connective tissue indurations. Emphysematous conditions in the other parts of the lung and cardiac decompensation promote the stasis in the stenosed vessels. Then varicosis develops and the thin, dilated wall of the vessel ruptures from the slightest irritation, such as an attack of coughing. Between these two main forms stand the hemorrhages from the scars at the apex of the lung and the initial hemoptysis in early infiltrates. Both of these are arrosion hemorrhages and are of minor intensity. The fact that the same pathologic conditions in some persons lead to hemoptysis and in others do not, shows that certain constitutional factors must be involved, as diathesis, toxic injury of the walls of the vessels, and coagulation anomalies. In discussing the therapy of hemoptysis the author states that the first aim should be to increase the coagulability of the blood. He points out that the mechanism of coagulation is as yet not entirely understood. Some consider it a chemicosynthetic process and others a colloidochemical process. The pharmacodynamic mechanism of most hemostatics is not clear and, according to the author's experiences, most of them fail in severe hemorrhages because they supply only one factor involved in the process of coagulation. The author further mentions several hemostatics and shows their shortcomings. Then he discusses the methods that he has found helpful. Minor hemorrhages, even if they continue for some time, do not endanger the life of the patient and do not necessitate therapeutic intervention. The patient should be kept quiet, coughing should be counteracted, and care should be taken that the patient has regular bowel movements. A thorough clinical examination should not be made until two days after the bleeding has ceased. The author asserts that the use of hemostatics never caused an earlier cessation of the hemorrhage than in cases in which a hemostatic was not used. On the contrary, he noted an increase in the hemorrhage following intravenous injection of calcium preparations. Profuse hemoptysis, which endangers the life of the patient, requires prompt therapeutic action. Most hemostatics, with the exception of protein injections, were failures in these conditions. Collapse of the bleeding lung by means of pneumothorax is advisable only if it is known which side of the lung is affected. As the best method the author recommends blood transfusion. He employed it successfully in eighteen cases of tuberculous hemoptysis. The usual amount transfused was from 80 to 100 cc.

Münchener medizinische Wochenschrift, Munich

77: 1221-1260 (July 18) 1930. Partial Index

Syphilis of Auditory Organ. A. Güttich.—p. 1221.
Action of Hormones in Gynecology. P. Hauptstein.—p. 1223.
*Treatment in Collapse Caused by Arsphenamine Injection. F. Wirz.—p. 1225.
*Increase in Cancer in Bavaria. V. E. Mertens.—p. 1227.
Method for Photography in Medicine and in Other Sciences. W. Comberg.—p. 1234.
Functional Tests of Heart by Means of Blood Pressure Curves After Exertion. E. Baráth.—p. 1235.
Methods in Psychotherapy. J. H. Schultz.—p. 1237.

Treatment in Collapse Caused by Arsphenamine Injection.—Wirz states that the collapse conditions that sometimes develop after injection of arsphenamine occasionally have a fatal outcome. He describes the clinical aspects of arsphenamine collapse and then discusses its pathogenesis. Postmortem examination of a patient who had died in an arsphenamine collapse proved that the heart and the peripheral vessels were almost empty. The arteries are strongly contracted during the collapse and the administration of circulatory stimulants is frequently ineffective. Therefore the author recommends that the vascular tonus be improved by the application of heat. He gives two case reports in which he employed this method. The patient was placed immediately in a hot bath. Already after half a minute the sallow, greenish-blue skin became reddish, the pulsation was again perceptible and consciousness returned. The patient remained in the bath for five minutes. Then he was wrapped in blankets and camphor was administered. After several hours he had recovered sufficiently so that he was permitted to go home. Similar favorable results with the hot bath were obtained in a woman who had suffered an arsphenamine collapse. In the conclusion the author points out that the hot bath might also prove helpful in other forms of collapse.

Increase in Cancer in Bavaria.—Mertens discusses various shortcomings in medical statistics and especially in statistics regarding cancer. Official reports indicate that cancer is on the increase in Bavaria. The author points out that many authorities believe that this increase is only apparent and not real. Two factors are usually cited as being responsible for the apparent increase, namely, the fact that modern diagnostic methods detect a larger number of cancer cases and also that a larger number of persons reach the higher age groups, and cancer is mainly a disease of the aged. However, careful analysis of the statistics convinced the author that these statements are not entirely correct and that there is a real increase in the number of fatalities from cancer.

77: 1311-1352 (Aug. 1) 1930. Partial Index

Determination of Circulatory Minute Volume in Human Beings by Fick's Method of Obtaining Mixed Venous Blood by Means of Catheterization of Heart. O. Klein.—p. 1311.
*Influence of Muscle Extract on Heart. I. Bagdassarjanz and M. Turkeltaub.—p. 1314.
Rest in Bed and Care in Diseases of Childhood. L. von Seht.—p. 1317.
Results of Examinations with Simplified Serologic Method of Müller's Conglobation Reaction. B. H. U. Mohrmann and B. Hajos.—p. 1317.
Vesicle Formation on Hands of Dishwashers Caused by High Temperature of Water. F. Lanyar.—p. 1320.
Possibility of Detoxicating Intestinal Contents by Means of Spring Water That Contains Sodium Sulphate and Magnesium Sulphate. O. Neustätter.—p. 1320.
Gas Permeability of Living Skin in Gas Baths and in Carbon Dioxide Water Baths. S. Hediger, Zürich and Tarasp.—p. 1321.
Effect of Decline of Mortality on Life Insurance. P. Hörnig.—p. 1323.

Influence of Muscle Extract on Heart.—Bagdassarjanz and Turkeltaub direct attention to Schwarzmann's investigations on the efficacy of muscle extract in the treatment of angina pectoris. They name several other authors who successfully employed the extract (from striated muscles of calves) in various cardiac disorders. The authors themselves gave subcutaneous injections of the muscle extract in fifty-four cases, and they tested the efficacy of the treatment by means of the electrocardiograph. They give the case histories of nine patients. Their observations are summed up as follows: 1. Under the influence of the extract the frequency as well as the intensity of the pains become reduced. 2. In patients with hypertension the blood pressure decreases, in those with hypotension it increases, and in normal persons the pressure either decreases slightly or remains unchanged. 3. Following the injection the cardiac rhythm becomes slower. 4. This retardation can be demonstrated with the electrocardiograph in the tenth minute after injection. 5. The retardation of the rhythm lasts longest in patients with tachycardia. In patients with bradycardia the rhythm becomes somewhat accelerated from forty to sixty minutes later.

Wiener klinische Wochenschrift, Vienna

43: 961-992 (July 31) 1930

Results of Primary Operative Treatment of Wounds. F. Felsenreich.—p. 961.
Clinical Aspects and Therapy of Rupture of Kidney. R. Friedrich.—p. 964. C'td.
Treatment of Severe Bilateral Contracture of Hips. G. Haberler.—p. 967.
Indications for Transperitoneal Nephrectomy. K. Haslinger.—p. 970.
*Adenoma of Mammary Gland During Pregnancy. W. Kreibig.—p. 972.
*Resection of Duodenal Ulcer. F. Mandl.—p. 974.
Roentgenoscopy of Normal Urinary Organs by Means of Intravenous Injection of Contrast Medium. J. Palugyay.—p. 978. C'td.
*Surgical Diathermy in Treatment of Wounds. W. Spitzmüller.—p. 981.
Late Results of Closed Injuries of Brain and Their Influence on Duration of Life. H. Steindl.—p. 985.
Restorative Surgery of Biliary Tract: Case of Hepatocholangioduodenostomy. F. Stöhr.—p. 990.
Animal Experiments on Syphilis of Kidney. M. Friedmann.—p. 992.

Adenoma of Mammary Gland During Pregnancy.—A woman, aged 18, in the fourth month of her first pregnancy, had always been healthy. Three weeks previously, however, she had noticed a small nodule in her right breast, which grew rapidly. Examination revealed a firm nodule in the upper external quadrant of the right breast. It was diagnosed as a fibro-adenoma. The tumor was extirpated. It showed no connection with the parenchyma of the gland. Microscopic examination revealed that it was an encapsulated epithelial formation, in which connective tissue occurred only in the form of small septums that divided the lobes. The lobes showed the structure of a mammary gland. In reviewing the literature, Kreibig found reports of two similar cases. Both of the patients were young, aged 20 and 21, respectively, and in both the growth became noticeable during pregnancy. The author comes to the conclusion that these adenomas have a certain relation to pregnancy and that they might be considered as adenomas that hypertrophied as a result of pregnancy. These adenomas are the tubular form. They are noteworthy not only because they are comparatively rare but also because they show to what extent an abnormal growth may adapt itself to the surrounding tissues, and they also prove that a tumor of the breast with rapid development during pregnancy is not necessarily a malignant growth.

Resection of Duodenal Ulcer.—In the first part of the article, Mandl mentions the various surgical methods that are employed for the treatment of peptic ulcers. In the second part he gives a statistical report on cases of duodenal ulcer. Cases in which gastro-enterostomy was done are not discussed, but the author reports eighty-one cases in which resection was performed. In thirty instances Finsterer's modification of the Billroth II operation was employed, and in fifty-one cases his resection for exclusion was done. In the latter method, unilateral exclusion of the pylorus is combined with an extensive resection of the stomach. The aim of the method is sure exclusion of the ulcer and a healing of it, and the object of the extensive resection of the stomach is to do away with hyperacidity and thus prevent an ulcer in the jejunum. Of the thirty patients in whom resection was done twenty were entirely free from pain, six were improved, two died and two were not improved. Of the fifty-one patients in whom resection for exclusion was done thirty-four were cured, eight showed improvement, two died, and seven were not improved. The statistical report is followed by a critical evaluation of surgical methods that are employed in the treatment of peptic ulcers. In the conclusion the author states that, if definite signs of an ulcer are absent, surgical intervention is not indicated. Whenever an ulcer exists, resection is probably the best method because, if the ulcer is removed, hemorrhage and perforation are prevented. However, resection cannot always prevent a jejunal ulcer. Considering the physiology and the chemism of the stomach, it seems advisable that in all resections of an ulcer, the antrum and the pylorus should also be resected. Although the resection for exclusion improves the chances for a healing of the ulcer, it does not guarantee the cure. The operation does not prevent later hemorrhages or a jejunal ulcer. It is inferior to resection and whether it is better than gastro-enterostomy cannot be decided as yet.

Surgical Diathermy in Treatment of Wounds.—Spitzmüller describes a method for the treatment of primary accidental wounds. It is a disinfection by means of surgical diathermy. The author reports his observations in 100 cases. He asserts that infection was prevented in all instances. He therefore recommends that disinfection by means of surgical diathermy be tried in other cases, and he thinks that it will prove to be superior to disinfection by excision with the surgical knife.

Zentralblatt für Chirurgie, Leipzig

57: 1969-2032 (Aug. 9) 1930

*Continuous Evacuation of Stomach by Way of Nares in Treatment of Postoperative Ileus. C. E. Jancke.—p. 1971.
*Treatment of Actinomycosis with Lymph Node Preparations. F. Trauner.—p. 1974.
*Operation for Ectopic Urinary Bladder. F. Roloff.—p. 1977.
*Plastic Operation for Repair of Diastasis of Abdominal Rectus Muscles. A. Abrashanow.—p. 1979.
Blood Supply of Tongue. D. Wasa.—p. 1981.
Use of Pedicled Skin Flaps to Cover Skin Defects. K. Tiesenhausen.—p. 1985.
New Instrument for Endovesical Electrocoagulation. E. Bors.—p. 1988.

Continuous Evacuation of Stomach in Treatment of Postoperative Ileus.—Jancke feels that this procedure has not received the recognition it deserves. Passing the tube through the nares has distinct advantages over swallowing the tube. A favorable effect is noted within a few hours. If not, the tube may be left in place for twelve hours at a time, when it should be removed to obviate the occurrence of ulcers in the esophagus. If after forty-eight or sixty hours the ileus has not disappeared, enterostomy is indicated. He has never performed a gastrostomy. The tube meets every expectation that a gastrostomy would and is much better for the patient. Five cases are cited.

Treatment of Actinomycosis with Lymph Node Preparations.—Having noted that actinomycosis develops only in tissues free from lymph nodes, Trauner concluded that it probably would be advantageous to add to the usual treatment of this condition an injection of lymph node juice, or an extract, alcoholic or aqueous. He used mostly the cervical lymph nodes of cattle but also took some from horses. The amount was 1 or 2 Gm. of gland substance in 1 cc. of fluid. This was embodied in the dressings, instilled into the abscesses or fistulous tracts and finally was injected into the cicatricial tissue. The effect of this treatment was apparent after a few days.

Operation for Ectopic Bladder.—Roloff reports two cases in which he performed Maydl's operation for this condition. One patient was a woman who had been operated on eighteen years previously. She married recently and became pregnant. Because of an increasing tetany of the uterus which could not be controlled medically, a cesarean section was performed. Both mother and baby died. The cause of death was not determined. The point is that the patient had been well for eighteen years and that she went through the pregnancy without any disturbance that could be charged to the operation. The second patient was a boy, aged 15, operated on five years ago. He was in splendid condition at the time of reporting.

Plastic Operation for Repair of Diastasis of the Abdominal Rectus.—Abrashanow uses strips of fascia lata which are passed completely around the muscles, but only in cases in which the separation is greater than 10 cm. The anterior sheath of the muscle is then closed in the usual manner. This preserves the state of the muscle both anatomically and functionally.

Zentralblatt für Gynäkologie, Leipzig

54: 1857-1920 (July 26) 1930

Place of Production of Hormone of Anterior Lobe of Hypophysis During Gravidity. E. Philipp.—p. 1858.
Induction of Abortion by Means of Roentgen Rays. K. Bollag.—p. 1867.
*Advisability of Interruption of Pregnancy in Congenital Hereditary Cataract or in Tumor of Brain. C. Fleischmann.—p. 1870.
*Rupture of Aorta During Puerperium. S. Böhm.—p. 1874.
*Contraindicated Ecbolics. E. Puppel.—p. 1878.
Menstrual Cycle of Human Vagina. K. Dierks.—p. 1882.

Interruption of Pregnancy in Congenital Hereditary Cataract or in Tumor of Brain.—Fleischmann reports the case of a woman with congenital cataract of both eyes who was in the fifth month of pregnancy. The anamnesis revealed that cataract and amblyopia were hereditary in this family. In four generations, fifteen of thirty-four members had had these disturbances. From the eugenic point of view it seemed advisable, therefore, to perform an abortion. However, because an abortion in the fifth month is not without danger for the mother, it was decided that this time the pregnancy should be allowed to go to term. The woman gave birth to a healthy girl but five months after parturition she consented to be sterilized. The author regrets that in the present day laws regarding abortion eugenics are not taken into consideration. In the second part of the article he discusses the case of a gravida with a tumor of the brain. The pregnancy was not interrupted and the woman gave birth to a macerated male fetus. The mother died several weeks later. The author states that the concurrence of tumor of the brain and pregnancy is rare but he thinks that, if such a case occurs, a committee of medical authorities should decide whether an abortion is advisable.

Rupture of Aorta During Puerperium.—Böhm reports a case in which rupture of the aorta caused the death of a woman, aged 31, on the sixth day after parturition. Examination before the beginning of labor revealed that the heart was enlarged in both directions, especially on the left side. An abnormal systolic sound could be heard and the second aortic sound was accentuated. The birth was spontaneous. On account of the cardiac disorder, the heart action of the mother was carefully observed, but complications did not develop. The postpartum period was normal up to the fifth day, when the patient felt a sudden sensation of pressure behind the sternum. She died eighteen hours later. At first it was thought that death was caused by thrombosis, by embolism or by heart failure, but the necropsy revealed a rupture of the aorta. The author further discusses the various conditions that may lead to rupture of the aorta. He mentions congenital weakness of the aorta, syphilis, pregnancy and the puerperium. One of these factors or several combined and an abnormally high blood pressure led to the rupture of the aorta. The case shows that, if an insufficiency of the aorta is detected during the early stage of pregnancy, interruption of pregnancy might be advisable.

Contraindicated Ecbolics.—Puppel is of the opinion that the potent ecbolics are employed more often than is advisable and that they may lead to rupture of the uterus. He discusses several ecbolics and states when they should be used and when they are not advisable. Ecbolics are indicated in cases of abortion especially when the patient is feverish. During parturition, ecbolics are indicated only during the period of expulsion when the head is on the floor of the pelvis and is nearly visible. At this point the gravida often loses her strength. During the placental stage the intravenous administration of an ecbolic is advisable if hemorrhages set in and when the expulsion of the placenta is retarded. In a cesarean operation an ecbolic should be administered after the extraction of the child. However, in cases of primary weakness of the labor pains during the period of dilatation, ecbolics are contraindicated. Their use is also not advisable when during the period of expulsion the labor pains become weak as a result of exhaustion. Ecbolics are likewise contraindicated when the uterine contractions are strong enough but extremely painful, for in these instances there exists a danger of rupture of the uterus. In all instances in which the physician thinks an injection necessary, he should observe the patient for some time before he gives it. Midwives should not be permitted to give injections.

54: 1921-1984 (Aug. 2) 1930

Results of Quantitative Determination of Sex Hormone. P. Schuschania.—p. 1924.
Causes of Onset of Labor. M. L. Perez.—p. 1937.
Congenital Gaps in Skull as Causes of Intra-Uterine Death of Fetus. H. Baumm.—p. 1938.
Comparative Statistics on Legalized and Nonlegalized Abortions. M. Magid.—p. 1939.
*Care of Umbilical Stump. M. Karp.—p. 1947.
Congenital Generalized Dropsy in the New-Born. F. Kovács.—p. 1948.
Davis' Cancer Reaction. S. Jagunow.—p. 1954.

Care of Umbilical Stump.—Karp points out that the opinions of authorities differ as to whether it is more advantageous to sever the umbilical cord close to the skin margin of the umbilicus or farther away. Some advise a close division to make the asepsis less difficult, and this method is practiced in the majority of obstetric clinics. However, the disadvantage of the procedure lies in the fact that, if an infection develops, the way to the peritoneum is short and the danger of peritonitis is greater. The difficulties of a possible secondary hemorrhage in case of a close division should likewise not be underestimated. *To eliminate such difficulties the author adopted Scherbak's* method. The umbilical cord is severed from 12 to 15 cm. away from the umbilicus. Following ligation of the stump about 2 cm. from the margin of the umbilicus the bandage is applied. Differing from Scherbak, the author applies to the umbilical stump a gauze compress, saturated with alcohol. He advises against ointment bandages. He has employed this method since 1925. Among 2,000 confinements, a subsequent cauterization of the umbilical stump was necessary in only six instances. In these cases a Paquelin cautery was employed.

Nederlandsch Maandschrift voor Geneeskunde, Leyden

17: 69-121, 1930

The Colitoxin. *B. P. B. Plantenga.—p. 69.*
Importance of Inorganic Metabolism in Pathology of Children. E. Gorter.—p. 84.
*Anemia with Icterus. F. J. Peljak.—p. 105.
Experimental Researches on Etiology of Scarlet Fever, Dairen, 1929. H. D. Boer.—p. 111.

Anemia with Icterus: Case in Child.—Peljak describes the peculiar case of a girl, aged 10. Up to the age of 5½, the patient was a healthy child and had a good color. She suddenly became ill with pain in the abdomen, squeamishness and high fever. She awoke the next morning with a yellow color of the skin, over her whole body. The urine was dark brown, and the stool had an unusual appearance. After ten days, the yellow tint had disappeared and the child was well again. At the same time a brother, one and one-half years older, presented precisely the same *symptoms*. He also had been well up to this time and had always had a good color. The mother doesn't remember whether either child was yellow the first few days after birth. The three following years after this morbid process, the girl again became yellow in the same month (August) as before. At the same time, she was languid and had no appetite. When 6½ years of age the child had a mild exanthematic disorder, at which time she was yellow, and had sore throat. At 10 she was still more or less yellow and was languid and apathetic; also the brother became paler and had several attacks of yellowishness of the skin, but, except for the slight icterus (especially of the sclerae), he was not ill. No other member of the family had ever had icterus. In the feces of the girl, a few oxyurids were found. Oil of chenopodium was administered and a large quantity of oxyurids were eliminated, as a result. The erythrocyte count was 3,030,000, and the leukocyte count was 10,000. Conspicuous in the blood was the large number of small chromocytes, which were dark red. These contrasted strangely with the usually larger and pale type. Hemolysis began in a 0.62 per cent solution of sodium chloride. In a 0.4 per cent solution about half of the erythrocytes were dissolved, and in a 0.3 per cent solution nearly all were dissolved. Normally dissolution begins with from 0.38 to 0.42 per cent solution, and total dissolution occurs with a 0.3 per cent solution. The child was given a diet with large quantities of milk, poor in fats but rich in raw fruit and green vegetables. To improve her appetite, she was given, three times a week, an ounce of liver, also syrup of ferrous iodide. Several days' rest in bed, at the start, was prescribed. She was left in the care of the family physician. When the author saw her five weeks later, the fatigued appearance had disappeared. She looked much better and had slightly pink cheeks, was not so yellow and had a good appetite. The blood picture, however, did not show much improvement. Roentgen irradiation of the spleen was tried for four weeks (five 2/10 erythema doses). The spleen was possibly slightly reduced in size but the irradiation had no influence on the blood picture. The author thinks that, in spite of the improved condition of the child, only extirpation of the spleen will effect a permanent improvement in this case of hemolytic icterus. He is not prepared to say whether it is a question of congenital familial hemolytic icterus or whether the same noxa produced similar conditions in brother and sister, at the same time.

Norsk Magasin for Lægevidenskapen, Oslo

91: 833-912 (Aug.) 1930

*Recurrent Vomiting and Acetonemia in Children. L. Salomonsen.—p. 833.
*Unusual Complication in Regular Enucleation. H. G. A. Gjessing.—p. 844.
*Acute Intoxication Due to External Use of Resorcinol. A. Klem.—p. 849.
*Tuberculosis Among Medical Students. J. Heimbeck, O. Scheel, T. Skaar and O. Thorrud.—p. 851.
Diet Treatment in Tuberculosis. F. G. Dahll.—p. 854.
*Subphrenic Abscesses. B. Dahl.—p. 860.
Biologic Significance and Therapeutic Application of Magnesium. B. Dahl.—p. 877.

Recurrent Vomiting and Acetonemia in Children.—Salomonsen says that this disturbance is due to an exhaustion of the nervous system or certain parts of it, and treatment should be along psychic lines.

Unusual Complication in Regular Enucleation.—In Gjessing's case of advanced glaucoma, with excellent results after antiglaucomatous iridencleises with meridional iridotomy *according to Holth in the better, right eye six years earlier,* enucleation of the left eye under local anesthesia according to Seidel was followed by temporary complete amaurosis and continued defect in the field of vision. As the anterior chamber was half filled with blood and profuse hemorrhage was feared, twice the usual amount of solution of epinephrine hydrochloride was added to the anesthetic, i. e., 2 drops per cubic centimeter, or 10 drops, half of the maximal dose for subcutaneous application (Poulsson). The injury is believed due to the effect of the epinephrine on the already weakened eye.

Acute Intoxication Due to External Use of Resorcinol.—Klem's case shows that even 20 Gm. of 50 per cent resorcinol paste, applied to an intact skin, may be dangerous.

Tuberculosis Among Medical Students.—Heimbeck et al. state that, among 183 medical students with known cutireaction prior to their hospital service, seven cases of tuberculosis were established during the hospital term, one among the eighty-eight with positive cutireaction, six among the fifty-one with negative reaction, and none among the forty-four with negative reaction, vaccinated with B C G.

Subphrenic Abscesses: Diagnosis and Treatment.—On the basis of his thirty-two cases, Dahl discusses the clinical development of subphrenic abscesses and their anatomic orientation, different types, diagnostic adjuvants and treatment.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 95, No. 18 CHICAGO, ILLINOIS November 1, 1930

CANCER OF THE BREAST

USE OF RADIUM AND ROENTGEN THERAPY IN CONJUNCTION WITH THE RADICAL OPERATION *

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It is well known that some English surgeons have recently abandoned surgery and are now advocating only the employment of irradiation in the treatment of carcinoma of the breast. In America also some well known radiologists are advocating irradiation to the absolute exclusion of surgery in this disease. On the other hand, there are surgeons in this country who believe irradiation actually stimulates cancer cell growth, and others who believe it lowers the surrounding tissue resistance so that cancer can develop more readily.

Certainly the report of the Committee on the Treatment of Malignant Diseases with Radium and X-Rays of the American College of Surgeons does not lead any one to hope for a cure to be derived from the exclusive [1] use of irradiation in the treatment of carcinoma of the breast.

Harrington [2] reviewed 1,859 cases from the Mayo Clinic and, after analyzing them, concluded that postoperative irradiation was of only little, if any, benefit.

Where such marked conflicts exist between honest and earnest men, the truth will probably be found somewhere between these two extremes.

In order to try to clarify our own mental uncertainty on this subject, we have reviewed as carefully as possible, with the incomplete and insufficient data at our disposal, the records of all cases of carcinoma of the breast in which operation was performed at the Jefferson Hospital, Roanoke, Va., between 1909 and 1930. Of course, there have been a number of inoperable cases seen during this period, which are not included in this series.

It was soon seen that no definite conclusions could be drawn from such a study of our limited experience, so we concluded to ascertain what was the general attitude and practice of other surgeons and radiologists as regards irradiation in association with surgery. With this in view, we sent a questionnaire to various surgeons and radiologists in this country and in Canada.

In other words, we have approached this question from three different angles: (1) our own clinical experience; (2) a review of the opinions of other surgeons, and (3) a review of the opinions of other radiologists.

CLINICAL EXPERIENCE

Our own clinical experience consists in analyzing as accurately as possible 341 cases of histologically proved carcinoma of the breast, all having had a Halsted radical operation. This series covers a period of about twenty years and is divided into three groups as follows:

1. From 1909 to 1920 there were 152 cases, and in this series only the radical operation, as advocated by the late Dr. Halsted, was done. At the end of five years, 32, or 22 per cent, of the patients were alive and apparently free from recurrences or metastases. In this group of 152 cases there were 8 patients whom we were unable to trace, and we assumed that these patients had died of cancer.
2. Starting in 1920, we began the placing of tubes containing radium in the field of operation and under the skin after the radical removal of the breast. We continued this method until 1924, and during this period there were 80 cases. Twenty-four, or 30 per cent, of these patients were alive and without recurrences after five years. In this group of 80 cases there were 5 patients whom we were unable to trace, and we assumed that these patients had died of cancer.
3. In 1924 we started the practice of adding high voltage roentgen exposures to the radical operation with the implantation of radium as previously mentioned. In this group there were 109 cases, only 18 of which have had their operations longer than five years. Ten, or 55 per cent, of these patients are alive and as yet without recurrences. Of course, this is far too small a number from which to draw any definite conclusions. In the remaining 81 cases in this group the time has been too short to be of any value, though, as far as we have been able to study them, there is apparently a marked decrease in the number of local recurrences and metastases.

In studying these cases, there are many factors other than operation and irradiation that have to be considered when attempting to estimate the relative value of any method. Chief among these undetermined factors are to be found the benefits resulting from the education of the public on matters pertaining to the necessity of early diagnosis and treatment of cancer. All surgeons are impressed with the fact that cases of carcinoma of the breast are being seen earlier, and therefore the results should be better.

It is possible that with increasing experience we are doing more thorough and complete operations as the years go by, but an honest effort has always been made to carry the dissection just as completely as the patient's condition permits in each case, and we do not believe this factor accounts for any marked improvement in our results.

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* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[1] Surg. Gynec. Obst., August, 1929.

[2] Harrington, S. W.: Carcinoma of the Breast, Surgical Treatment and Results, J. A. M. A. 92: 208 (Jan. 19) 1929.

No "typing" or grading has been done for a sufficient number of years to be of any comparative value. It has been known for many years that the histologic study of malignant growths was of great prognostic value. It is hoped that the classifications of Broders[3] and others, as well as the abstract cards of the American College of Surgeons, will be more universally employed. If this is done, surgeons will be able to make comparisons of methods which will be of some value. Any comparison of two series of cases without some such standard is of but little value, for, without this aid, reliance will be placed on possibly inaccurate impressions, and dependence on facts will be neglected in arriving at conclusions. The review of our own cases illustrates only too well this situation.

For a number of years we have felt that one large gland in the axilla, not associated with numerous small ones, gave a more favorable prognosis than numerous small glands in the axilla. In a recent communication from Dr. James Ewing, he states that "cancer localized in one large lymphatic gland is less malignant than one which rapidly spreads from one node to another. The very fact that it remains in one node shows that it is less active, or else that the filter is more effective."

We recall a number of cases in which *one large* gland in the axilla was removed during a radical operation, and these cases have done far better as regards both metastasis and recurrences than those in which there were numerous small glands. Perhaps this type of gland should be considered in estimating relative prognosis in different groups along with whatever histologic grouping is employed.

In our series there has not been one patient having a palpable supraclavicular gland who has lived as long as one year after such a gland was discovered, regardless of what was done.

It has been our custom to make histologic sections of glands removed from the axilla. We regret to state that our reports are not sufficiently accurate to give the relative percentage of malignancy found in such glands examined. However, we have been impressed with the fact that palpable glands in the axilla associated with a malignant growth of the breast does not necessarily mean that the axillary glands will show malignant invasion. Of course, in the vast majority of such cases these axillary glands are malignant.

We have also found the clinical index of Lee and Stubenbord[4] to be of much prognostic value. Our experience coincides with that of other surgeons relative to the poor prognosis in carcinoma in the young.

In 1922, one of us[5] called attention to the effects of pregnancy on the remaining breast after removal of the other breast for carcinoma.

Kilgore,[6] in 1921, pointed out the incidence of cancer in the second breast, showing that if a patient survives five years she is "from three to four times more likely to develop cancer in the second breast than a normal woman of the same age in either of her two breasts."

When we first started using radium in 1920, we placed most of the tubes containing the radium as close to the axillary vessels as we considered safe. We then placed the remainder of the radium around in different localities under the skin flaps.

Since the publication of Handley's oration, read before the Clinical Congress of the American College of Surgeons at Montreal in 1926, we have been trying to follow the suggestions he gave relative to the placing of these tubes. He places these so that they are near the course of the lymphatic trunk which accompanies the internal mammary artery, and also so that they lie close to the glands which are contiguous to this artery. Handley placed his tubes in these regions, since these were the points at which he noticed the recurrences.

Some years ago, Dr. Halsted attached considerable prognostic importance to the finding of a gland under the falciform fascia. This observation coincides with the experience of Handley. Handley[7] reported a most instructive case in which a nodule appeared in the second intercostal space five years after operation. Two years later, another nodule came in the third space. The fourth and fifth spaces were invaded at about four months' intervals. All of these nodules appeared along the line usually occupied by the internal mammary glands. Twelve years after operation, this patient died. Handley feels that, had radium been employed in conjunction with surgery at the first operation, this patient would not have died of cancer.

Handley classified his cases into three groups:

1. Cases in which the internal mammary glands are not infected at the time of operation.
2. Cases in which these glands are so infected.
3. Cases in which the glands are infected, and in addition, the disease has already spread beyond them to the other glands within the thorax.

He advocated the postoperative use of radium in group 2 but considers it superfluous in group 1 and ineffective in group 3.

We use radium with the operation as a routine, because we do not feel that we are able to classify our cases definitely, and, in addition to this, radium so employed certainly does not do any harm. As far as we are able to estimate, there has been no interference with the healing of the wounds.

The radium is screened with 0.5 mm. of silver and 1.5 mm. of brass. These tubes are then placed in the long pure gum rubber tube, which is kept in position by a ligature about the rubber tube above and below the enclosed radium tube. The amount used is either 50 or 100 mg. of radium in the form of two 25 mg. tubes, and four 12.5 mg. tubes. This distributes the radium over a distance of some 6 inches, and our method has been to leave orders for the tube to be pulled down 2 inches every two hours until removed. It will be seen that this varies the dose, depending on the height to which the tube is placed. Roughly speaking, the tube is entirely removed at the end of twelve hours, which would obviously give a dosage of 1,200 mg. hours when the larger amount of radium is used.

We have not employed preoperative irradiation largely because we have not been able to control our patients. In the few instances in which we tried it, the patients have either received some benefit or thought they had, and then delayed operation until there was definite glandular involvement. We have never practiced the method of giving one large massive dose before operation because in our hands such a dose produces too much nausea to permit an operation for several days, and this nausea starts a few hours after exposure to the high voltage therapy. Then, too, most of our patients with cancer of the breast are so apprehensive concerning the outcome of the operation that delay works a mental hardship.

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[3] Broders, A. C.: Squamous-Cell Epithelioma of the Lip, J. A. M. A. **74**: 656 (March 6) 1920.

[4] Lee, B. J., and Stubenbord, J. G.: Clinical Index of Malignancy for Carcinoma of the Breast, Surg. Gynec. Obst. **47**: 812 (Dec.) 1928.

[5] Trout, H. H.: The Remaining Breast After Radical Removal of the Opposite Side for Carcinoma, Surg. Gynec. Obst. **34**: 630 (May) 1922.

[6] Kilgore, A. R.: The Incidence of Cancer in the Second Breast After Radical Removal of One Breast for Cancer, J. A. M. A. **77**: 454 (Aug. 6) 1921.

[7] Handley, W. S.: Parasternal Invasion of the Thorax in Breast Cancer and Its Suppression by the Use of Radium Tube as an Operative Precaution, Surg. Gynec. Obst. **45**: 721 (Dec.) 1927.

There is apparently no doubt that irradiation heals the majority of surface epitheliomas and improves (if it does not cure) carcinoma of the cervix. In addition to these observations, some recurrences following radical operations for carcinoma of the breast disappear following irradiation. Occasionally one sees metastases decrease in size and in bone metastases the pain relieved, but we have never seen such a case "cured" by any type of irradiation.

Carnett and Howell,[8] in analyzing bone metastases in cancer of the breast, make the following statement:

> *The complete modern breast operation, especially along the* lines laid down by Handley, supplemented by irradiation, is seldom followed by external recurrence. In these days, patients exhibit skin nodules far less frequently than bone metastases.

If these observations are correct, it is reasonable to assume that sufficient and well directed postoperative irradiation will "kill" or retard the growth of any cancer cells that may inadvertently have been allowed to escape into the field of operation or any nearby extension which is impossible to remove with the complete operation. It is perfectly possible that insufficient dosage of irradiation will "fix" the tissues and make them "radioresistant."

Dr. James Ewing[9] stresses the importance of adequate doses:

> When one sees under the microscope the extensive changes, sometimes amounting to complete destruction of the mammary cancer by external radiation, one cannot escape the conclusion that preoperative irradiation of mammary cancer must be of value. Yet the doses delivered by the average radiologist or surgeon in these cases are ridiculously small. To produce definite results, one must deliver to the tumor at least two or three erythema doses, and this is very seldom accomplished. These tumors are resistant, and usually the best method is interstitial irradiation. After interstitial irradiation, we are now getting many breasts in which it is difficult to find any traces of carcinoma. Grounds for postoperative irradiation seem to me less clear and, again, the doses required must be considered. Assuming that small groups of cells remain beyond the operative field, full irradiation must inevitably damage such cells, but I fear that the doses ordinarily given are inadequate to accomplish much good. Yet, definite postoperative recurrences, visible and palpable, are often controlled by the ordinary radiologic treatment.

Many roentgenologists share the belief of this danger with him; hence it is important to be certain that sufficient dosage is given.

In visiting various hospitals and talking to different surgeons and radiologists, we find that the calibrating of x-ray machines is not as frequently done as physicists and x-ray manufacturers think necessary. Some years ago our attention was called to this possible error, and when we had a well known physicist calibrate our machine we were much shocked to find we had not known what dosages were being delivered.

The technic employed at the Jefferson Hospital in the postoperative roentgen irradiation is, briefly, as follows:

The intensity output is estimated annually by a competent physicist, the calibration being made in terms of r units. The erythema value of 970 r units is obtained with 360 milliampere minutes at 200 peak kilovolts, 50 cm. distance, and 5 milliamperes. The filters used are 0.5 mm. of copper and 1 mm. of aluminum.

Therapy is started in from seven to ten days after operation. The portals for the chest wall are 20 by 20 cm., but smaller portals are used in the axilla and supraclavicular region. Each area is treated daily with small doses, which usually cause little or no roentgen sickness. A daily radiation loss of 7 per cent is allowed for and the treatments are continued until the 970 r is given. The total time taken for this series is from fifteen to twenty days. The treatment series is not repeated. The initial and subsequent dosage may vary with the individual, but treatment is always carried to the skin saturation point.

We have tried the cautery excision of the breast but have had too few cases to draw any conclusion further than the fact that in our hands the healing was not as good as when the incision and dissection were done with the knife. From experimental work done by others, apparently, there is no doubt that actual heat kills cancer cells at a slightly lower temperature than it destroys most normal cells. Certainly in Dr. A. C. Scott's hands excellent healing is obtained, and were we able to obtain as good, we would add the cautery to our armamentarium.

To summarize our impressions from a study of our own cases, we feel that there are many factors which have produced improvements in our results, and that, while postoperative irradiation may be one of these factors, there are many others which have helped, chief among which is cancer education. We have seen no harm—mental, physical or financial—resulting from postoperative irradiation, and expect to continue its use until we obtain something better.

QUESTIONNAIRE SENT TO SURGEONS

We sent a questionnaire to 149 surgeons and received 138 replies. At the bottom of this sheet a space was left for voluntary remarks. One hundred and twenty-nine, or 94.5 per cent, had remarks to make, which shows that the question of irradiation in connection with radical surgery is a live subject with the vast majority of surgeons.

The following is a brief résumé of the various answers to the questionnaire sent to these surgeons, all of whom have membership in either the American Surgical Association or the Southern Surgical Association:

Question 1. Do you employ preoperative irradiation?

(*a*) Twenty-six employ preoperative irradiation as a routine.

(*b*) Eight employ preoperative irradiation occasionally; usually in advanced cases.

(*c*) One hundred and four never employ preoperative irradiation.

(*d*) Of the thirty-four who employ preoperative irradiation, all use postoperative irradiation also.

Question 2. Do you employ postoperative irradiation?

(*a*) Eighty-three use postoperative irradiation as a routine. Three use it not because of any faith they have in it but to prevent criticism, especially from the public, and have not seen ill effects from its use. One feels that he obtains marked benefit in 10 per cent of cases because such cases happen to be radiosensitive. He does not suggest any method of ascertaining which cases are radiosensitive and which ones are not. Concerning the remainder, there are too many widely divergent opinions for tabulation.

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[8] Carnett, J. B., and Howell, J. C.: Bone Metastases in Breast Cases, Ann. Surg. **91**: 811 (June) 1930.

[9] Ewing, James: Personal communication to the authors.

(*b*) Fifteen never employ postoperative irradiation. Two because of bad mental effect on the patient. Three discarded use of irradiation before the advent of high voltage therapy. One feels that irradiation stimulates cancer growth. Two feel that it tends to make surgeons do less extensive operation. One has never used irradiation and claims that he does not feel that he knows anything about it. One discontinued its use following a report of the American College of Surgeons. The remaining five offered no explanation as to their reason for not using postoperative irradiation.

(*c*) Forty use it occasionally. Twelve use it only after recurrences have actually occurred. Twenty-three employ it when they think there are apt to be recurrences; e. g., glands in the axilla and adherence of growth to the chest wall. Three use it only when the family physician insists on its use. One uses it only after incomplete palliative operations in the aged. One uses it only in patients under 36 years of age.

Question 3. If so, x-rays, radium or both?

Of 123 using postoperative irradiation, 90 employ x-rays, one employs radium alone, and 32 use both x-rays and radium in the same patient. One surgeon calls attention to the possibility of insufficient dosage making the tissues become "roentgen fixed."

QUESTIONNAIRE SENT TO RADIOLOGISTS

We sent a questionnaire to 199 radiologists and received 130 replies. At the bottom of this sheet was left a space for voluntary remarks. Ninety-three, or 71 per cent, had remarks to make, which indicated that radiologists also are interested in the question of irradiation in association with surgery.

The following is a brief résumé of the various answers to the questionnaire which was sent to these radiologists, all of whom have membership in either the American Roentgen Ray Society or the Radiological Society of North America.

Question 1. Do you believe in fairly early and routine postoperative irradiation following radical removal of the breast for carcinoma?

(*a*) One hundred and nineteen answered in the affirmative.

(*b*) Eleven answered in the negative.

Of the 119 who answered in the affirmative, there were too many remarks made to be tabulated. Of the 11 who do not believe in postoperative irradiation as a routine, 7 employ x-rays for recurrences. One does not believe that surgery has any place in the treatment of carcinoma of the breast. One employs it when so desired by the physician. One stated that it was of no proved benefit and therefore never given. One had no remarks to make.

Question 2. If so, x-rays, radium or both?

Ninety-three used x-rays, 2 radium, and 24 both. Of course, this is explained by the fact that very few localities have sufficient amounts of radium to permit the giving of proper dosage.

Question 3. What dosage do you employ?

Ten employ from 100 to 124 kilovolt peak; thirty-one, from 125 to 149; twenty, from 150 to 179; forty-nine, more than 180. Massive, 33; repeated smaller doses, 75.

Question 4. Have you noticed any ill effects from irradiation, such as:

(*a*) Breaking down of incision? No, 112; yes, 7. From the various remarks made, it would seem that the general opinion is that such is due to improper dosage.

(*b*) Lung fibrosis? Eighty have not seen this; forty-six have seen it.

While the expression "lung fibrosis" was employed in the questionnaire, we are now convinced that this term was an unfortunate selection. Probably the expression "pluropulmonary reaction," as has been suggested, is a far more accurate description, as "lung fibrosis" implies permanent fibrotic changes. From the remarks that accompanied the replies, we are led to conclude that the large majority of men replying in the affirmative to this question really referred to a transient pleuropulmonary reaction. However, this is a dangerous sequela against which every known precaution should be employed.

(*c*) Nausea? All except nineteen have noted its presence.

Question 5. Have you ever seen irradiation stimulate cancer growth?

Fifteen thought that they had observed this phenomena. Five had seen it with sarcoma. Six had seen it with epithelioma. Four had seen it with recurrences after breast operations. The majority had seen this only with insufficient doses.

Question 6. Have you found "typing" based on histology of value in estimating "radiosensitivity"? Yes, 42; no, 52; no experience, 32.

It is a significant fact, as ascertained from these replies, that when the surgeons are opposed to postoperative irradiation, so also are the radiologists.

SUMMARY

From a follow up of our own cases, we find that our results have improved since the employment of postoperative irradiation, but we do not feel that such improvement is entirely due to the irradiation but rather to cancer education. However, we feel that postoperative irradiation is of distinct value and should be employed as a routine. We have seen no ill effects from postoperative irradiation, though we realize that unless a surgeon is careful he may relax in the thoroughness with which he does a radical excision, hoping that such irradiation will perhaps compensate for his dereliction.

We believe that the placing of tubes of radium *under the skin at operation followed* by sufficient and properly directed roentgen treatment is the best manner of giving postoperative irradiation.

Not enough time has elapsed to estimate the results of the newer roentgen treatment, but there are many indications that with the methods now in vogue the beneficial results of postoperative irradiation will be more definite.

It has never been proved that properly given postoperative irradiation is harmful; it is generally believed that irradiation is helpful in other parts of the body, and 89 per cent of the surgeons and 91 per cent of the radiologists who replied to a questionnaire assume that postoperative irradiation is beneficial as the adjunct to surgical treatment of carcinoma of the breast. Therefore we believe that the patient should be given the benefit of postoperative irradiation as a routine.

Jefferson Hospital.

The Importance of General Practice.—In the trend toward specialism the pendulum is swinging too far, and it is the duty of medical educators and leaders to indicate to their students the importance of general practice and the high profession attainments that are necessary for success in it. But this alone will not suffice. In the last analysis it is the attitude of the public which will determine the careers of many of our future medical men. If the public will but realize that it can have no greater asset than a close and continued personal relationship with a wise, sound, general adviser, it may rest assured that there will always be an adequate response to the call for service. In order to get the best type of medical men to turn to general practice, however, it is necessary for the public to understand that the qualifications for general practice are at least as high as those which are requisite for specialism, and to appreciate that the general practitioner is worthy of its respect and confidence.—Peabody, F. W.: Doctor and Patient, New York, Macmillan Company, 1930.

PROBLEM OF TUMORS OF BREAST FROM STANDPOINT OF GENERAL PRACTITIONER AND SURGEON

DIAGNOSIS, TREATMENT, PATHOLOGY AND PROGNOSIS *

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I will discuss the problem of tumors of the breast from the practical clinical standpoint and give the conclusions which I have arrived at from my experience in my own clinic and in my laboratory. Tumors of the breast are very common. They occur in about three women in a hundred. They are comparatively rare in men. They occur about fifty to a hundred times as often in women as in men. For clinical purposes tumors of the breast can be classified in a very simple way.

In a surgical clinic in which during the year 300 women present themselves with the problem of tumor of the breast, 100 will not have a tumor at all, 100 will have a benign tumor, and 100 will have a malignant tumor.

Those who have no tumor at all form a most important group. They must be carefully studied, as they are an essential part of this problem. These patients fall into several groups:

1. Women who are alarmed about their having a breast tumor and come direct to the clinic; often they are in the fear of cancer because some relative or friend has had cancer. An examination shows no tumor.

2. Women who have consulted a general practitioner about their breast and have been told that they have a tumor and have been referred to the clinic for operation. Examination shows no tumor. The explanation here is simple. The woman herself thinks she has a tumor and the physician examines the breast and thinks that he can make out a tumor as he palpates a certain part of the breast. This often occurs when the woman has a normal but lobulated breast; palpating one of these lobules gives one the impression of a tumor, but with a little more experience with these cases the physician would learn that if he picked up the periphery of this breast at almost any point between the thumb and the finger it would give him the sensation of a tumor.

3. The woman in fear of a breast tumor who consults her family physician, who thinks she may have a breast tumor and refers her to a surgeon, who tells her that she has a tumor and needs an operation. Often the statement is made that an immediate operation should be done. Badly frightened, the woman or her husband desires another opinion and comes to the clinic. An examination at the clinic fails to find a tumor of the breast and it is evident that no operation is required. Here the explanation is more difficult. One can easily understand the woman's being unnecessarily alarmed and mistaken, and the family physician who has had a limited experience with tumors of the breast; but what about the man who poses as a surgical expert who has strongly advised an operation for breast tumor when none exists? The explanation must be ignorance, bad judgment or lack of sound ethics. I have seen repeatedly examples of all three. Some men pose as expert surgeons who are not in fact expert surgeons, and such a one can easily and honestly be mistaken. Again lacking good judgment, a consulting surgeon may advise the removal of a breast when no tumor exists, controlled by the thought that, although he cannot demonstrate a definite tangible tumor, one may exist and the operation is justifiable. The logic here is simple and clear. Tumors of the breast are definite, tangible and palpable lumps like a bean, an English walnut, an egg or an apple, and one should not strain his imagination or the eyesight at the end of the palpation finger and force the diagnosis of a tumor where none exists. Diffuse carcinoma of the breast may exist without a palpable tumor, but the other evidences are definite. A surgeon who lacks sound ethics performs an operation for the removal of the breast in a case in which the woman comes to him in the fear of cancer when no cancer and no tumor exist. One's first reaction to such a statement is that such a thing must be impossible; but I have seen so many cases and have investigated so many with care in which operations for the removal of the breast have been advised, when the most careful examination showed no tumor and when repeated examinations over a period of months and years disclosed no tumor, that I am forced to the conclusion that too many amputations of the breast are made on insufficient indications.

It is a fact that no one is infallible, that every one, even with the best intentions, makes mistakes; but certainly with the present knowledge of tumors of the breast there is little excuse today to remove a breast for tumor when none exists. In a case in which the surgeon is uncertain, an exploratory incision and the removal of a section for examination can be done easily and safely, and an unnecessary operation avoided.

Of the 300 women coming to the clinic, 100 have no tumor and require no operation. These women are, of course, grateful and most of them are satisfied with the simple assurance that they have no tumor and do not require an operation. A few of them who are in great fear of cancer come back repeatedly and need repeated and positive assurance that they have no cancer before they are finally convinced.

The other 200 women who are examined have a breast tumor. About half of these have benign tumors or benign conditions of the breast, and about one half have cancer. The essential benign tumors of the breast are fibro-adenomas and fibrocystic disease, the so-called chronic cystic mastitis of the breast. The malignant tumors of the breast are carcinomas in all but 1 or 2 per cent of cases and these are sarcomas.

The usual problem that must be solved in a woman who has a lump in the breast is: Is it a cancer, a fibro-adenoma or fibrocystic disease of the breast, or is it a granuloma such as tuberculosis? The correct clinical diagnosis can be made in more than nine tenths of the cases from the history and clinical examination.

How is the diagnosis made? The most satisfactory method of examining the breast is to have the woman in the erect or sitting position. The finding of a tumor with the woman in the recumbent position is more difficult. I have had a number of women tell me that they can feel the lump when they are standing up but not when they are lying down, and I have demonstrated this many times in examining for a breast tumor. The breast should first be examined with the flat of the hand by very gentle pressure and, if a lump is felt, the breast should be fixed with the left hand and the lump picked up with the thumb and forefinger of the right hand. Fixing the breast firmly with the left hand, one should

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* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

now move the lump between the thumb and the forefinger of the right hand in the breast tissue as freely as possible to see whether it is freely movable or fixed and frozen into the breast tissue. This is the most important single piece of evidence that one can obtain in making an examination of breast tumors. The benign tumors are freely movable in the breast tissue. The malignant tumors are fixed and frozen into the breast tissue. On trying to move a carcinoma, one finds that it is so fixed in the breast tissue that the mammary gland moves with the tumor.

What is the explanation of this fact? The ancients called malignant tumors cancer—the crab—because like a crab it had legs extending into the tissues about it, and in fact this is true of cancer; for, extending for some distance beyond the gross primary lesion which one can see with the naked eye, processes permeate far out into the surrounding breast tissue which can be demonstrated with the microscope and these processes fix the cancer so that it is so frozen into the breast that when the lump is moved the breast tissue moves with it.

Far different conditions are found in examining a benign tumor of the breast. In examining an encapsulated fibro-adenoma one will find the tumor freely movable in the breast, often surprisingly movable, so that it can be moved an inch or two without any perceptible movement of the breast tissue, and usually, but to a more limited extent, the same free movement is found in examining a cyst of the breast and in cystic disease of the breast where the lump is not encapsulated. Although they are not encapsulated, they are not frozen into the breast by processes extending out from them as in a cancer; and because of that fact fairly free movement of the cyst in the breast can be obtained.

In making an early diagnosis of cancer of the breast when the lesion is still limited to the breast, the problem is solved by determining whether it is fixed and frozen into the breast or movable. The same fundamental facts that produce fixation in a cancer produce two other clinical facts of great value in making the diagnosis of cancer of the breast: dimpling of the skin over the lump and retraction of the nipple. Women often come to me for examination of the breast saying that they have discovered a dimple in the breast which they have never seen before; this almost invariably means cancer.

The cases of cancer of the breast which can be cured by operation are those in which the lesion is still limited to the block of tissue which can be removed at the operation, and in these cases the only pieces of evidence that can be obtained are the existence of a lump fixed in the breast tissue. The old textbook symptoms of cancer of the breast, pain, enlarged glands in the axilla, fixation of the breast to the thorax, evidences of carcinomatous cachexia and enlarged glands above the clavicle, tell all too plainly the story of an advanced process which may be palliated but not cured.

In making a differential diagnosis between fibro-adenoma and fibrocystic disease of the breast, one may find much difficulty. I am often uncertain, especially in the case of a single lump, whether I have a solid or a cystic tumor to deal with.

One of the most interesting and common conditions of the breast is still a pathologic problem. I refer to the chronic cystic mastitis of Koenig, the maladie cystique of Reclus, the cystadenoma mammae of Schimmelbusch and the fibromatosis of Fragenheim and Dietrich. This condition furnishes, next to carcinoma, the greatest number of breast cases. Koenig believed that it was due to chronic inflammation of the breast with resulting cyst formation; Reclus believed it was a cystic disease of the breast and not neoplastic; Schimmelbusch regarded it as neoplastic, and the process is often spoken of as Schimmelbusch tumors; Fragenheim and Dietrich regard the process as a senile or presenile involution change due to hormones from the ovary. This last conception seems very plausible.

From the standpoint of the clinical surgeon I believe that it must be discussed with breast tumors and I have described it under the head of fibrocystic disease of the breast. The process includes the large solitary cyst, the multiple cysts in one or both breasts and a wide variety of conditions between these extremes. It must also be made to include a chronic fibromatosis of the breast with little evidence of cyst formation.

From the pathologic standpoint the term fibrocystic disease of the breast probably describes better than any other term the true nature of the process.

For clinical purposes the best classification of tumors of the breast is into benign and malignant, as in the accompanying tabulation.

Classification of Tumors of the Breast

Benign	1. Fibro-adenomas, which consist of	Pericanalicular and intracanalicular, with the special cauliflower type called cystosarcoma phyllodes; intraductal fibro-adenoma
	2. Papillomatous cysts: true tumor of the breast resembling true ovarian tumors	[illegible] rare in the author's clinic
	3. Fibrocystic disease of the breast or chronic cystic mastitis	Single blue dome cyst; multiple cystic disease; chronic fibromatosis of breast
Malignant	1. Sarcoma, probably forming less than 2 per cent of malignant tumors	Spindle cell and round cell, very few giant cell; many sarcomas are more or less cystic
	2. Carcinoma, forming more than 98 per cent of malignant tumors	1. Simple carcinoma 2. Diffuse carcinoma 3. Medullary carcinoma 4. Colloid carcinoma 5. Adenocarcinoma 6. Carcinomatous cysts 7. Paget's disease

BENIGN TUMORS

The fibro-adenomas are easily recognized. They are encapsulated, freely movable and hard on palpation. One cannot differentiate clinically the pericanalicular from the intracanalicular; in fact, in some tumors both pericanalicular and intracanalicular tissue can be seen in the same field. The special and unusual clinical picture is the cauliflower type, the improperly called cystosarcoma phyllodes, which is not a sarcoma at all but a benign tumor of the intracanalicular type, which grows rapidly like a cauliflower and by pressure necrosis sometimes produces an ulceration of the overlying skin permitting the tumor to grow out as an ulcerating necrotic mass, producing the impression of a fungating malignant tumor. The term cystosarcoma phyllodes should be dropped. The better term would be cystofibroma phyllodes or fungating intracanalicular fibro-adenoma. These cases are not especially common. The safe way to handle them is to make an exploratory incision under a general anesthetic and have a frozen section examined at once to determine the diagnosis. The condition demands simply the thorough removal of the tumor and not a radical amputation of the breast.

Papillomatous Cysts; Cystadenoma of the Breast.—These are true tumors and are to be distinguished from retention cysts and the cysts that are so common in chronic cystic mastitis, just as multiple follicular cysts of the ovary are to be distinguished from true ovarian tumors. Many of these have papillomatous ingrowths projecting into the cyst cavity. These may produce bleeding from the nipple. These papillomatous cysts may be malignant or may begin as benign and become malignant later. These true cystic tumors of the breast are not common. One will see more than ten cysts of the breast due to chronic cystic mastitis to one true cystic tumor of the breast.

One form that is of especial interest is a papillomatous tumor or a fibro-adenoma in a milk duct which gives rise to a bleeding nipple and which can often be located with the tip of the finger and either felt or located by producing bleeding from the nipple by pressure over the tumor.

The most common form of benign lump in the breast is produced by the process called chronic cystic mastitis, fibrocystic disease of the breast, fibromatosis of the breast. This, as I have already stated, is not inflammatory or neoplastic but probably an involution change in which fibrous tissue and retention cysts are produced. There may be but a single large blue dome cyst, surrounded by a few satellite cysts; there may be an extensive cystic disease involving a large part of the breast or there may be a general fibrosis of the breast with small cysts sparsely placed in the tissue. This process is probably initiated by hormones from the ovary; the hormones that produce the changes in the breast in menstruation and pregnancy. The process is a senile or presenile involution change. It has been my practice to operate on these benign tumors and remove them by a local resection which I shall describe more in detail, especially for the purpose of making a definite diagnosis.

MALIGNANT TUMORS

Sarcoma can be dismissed with a few words. Sarcoma is so rare that even in a busy clinic it is seldom seen. Probably less than 2 per cent of malignant tumors of the breast are sarcomas. The old statistics of Billroth and Gross on breast tumors cannot be accepted today. They thought that more than 80 per cent were carcinomas, about 9 per cent sarcomas and about 9 per cent benign. Statistics today are that more than half of breast tumors are benign, less than half malignant and only about 1 or 2 per cent sarcomas.

Most of the sarcomas are spindle-cell, some round and a few giant-cell; about one half of the sarcomas are more or less cystic. They should be handled by the same radical operation as carcinomas. In their early development they may be difficult to differentiate from benign tumors. A definite diagnosis can be made only by the microscopic section.

Clinically, the most important tumor of the breast is carcinoma. One must be able to recognize several clinical forms:

First, simple carcinoma with a definite single palpable frozen-in tumor.

Second, diffuse carcinoma involving the breast widely, often so diffuse that no palpable tumor can be made out. The skin is edematous from lymphatic obstruction producing a lymphedema and looks like a pig-skin saddle. The mammary gland is larger than normal and often looks as though inflamed, and it is often mistaken for an inflammatory lesion.

After one has seen a number of such breasts the site of a diffused carcinoma, the diagnosis is not difficult; the prognosis is bad. The cancer of the breast in which there is a definite palpable single tumor may be either hard or soft or cystic or an adenocarcinoma or be the site of mucoid degeneration. These differences are not of great interest or importance clinically and are usually determined on microscopic examination which must, of course, always be made.

Another form that must be recognized clinically is the condition called Paget's disease of the breast. This is not uncommon. It has a distinct clinical picture which can be easily recognized after it is seen a few times. There is usually no palpable tumor in the breast, but in advanced cases there may be one. The nipple is the site of an eczematous skin lesion; the nipple is retracted and covered with a red weeping integument which bleeds easily. It is to be differentiated from simple eczema, which is not as a rule of as long standing and which should disappear under proper treatment. It has given rise to much controversy since it was first described by Paget in 1874. Its pathology is now thoroughly understood. It is a carcinoma beginning in the milk ducts and extending to the skin around the nipple, and the eczema is secondary to the carcinoma. The carcinoma is not secondary to the eczema. No mistake should be made in the handling of this condition. It should not be handled medically or with roentgen treatment but should be treated as any other cancer of the breast by radical amputation.

The operative technic for tumors of the breast has become standardized. The benign tumors should be removed by local excision, the malignant by the radical breast operation. One cannot always be sure in a given case, however, whether one has a benign or a malignant tumor to deal with and this fact must, of course, be first determined. One must always be prepared in a given case to do either a local or a radical operation.

The patient is told before the operation that the diagnosis cannot be determined with absolute certainty except by a microscopic examination.

The patient is prepared for operation. I prefer ethylene as the anesthetic. Ethylene should never be used, however, unless the operating room has been properly grounded to prevent static. With this proper grounding, ethylene is just as safe as the use of gasoline in one's automobile. More than nine times out of ten the clinical diagnosis is sufficiently clear to warrant the surgeon in proceeding at once to do either a local excision or a radical operation. In possibly one case out of ten the experienced surgeon is uncertain and an exploratory incision down on the tumor is necessary. In almost all of these cases—say in 95 per cent—the character of the tumor can be determined from its gross appearance on section. In a case in which there is doubt, a frozen section is made at once and a microscopic examination obtained. With such a scheme of procedure the surgeon can safely decide on either a local or a radical operation on the basis of the evidence obtained.

In operating on benign tumors I almost always employ Warren's incision made in the fold under and to the outer side of the breast, turn the breast upside down, expose the tumor from beneath, remove the tumor by clean-cut sharp dissection, removing an elliptic mass containing the tumor, sew the incision in the breast together with catgut, close the superficial fascia with catgut, and close the skin incision with a fine catgut subcuticular stitch. This makes a fine closure and a barely visible scar. These cases should all be drained with soft collapsible rubber tubes for about three days, as there may be some bleeding and a considerable amount of primary wound secretion. Occasionally a benign tumor is better removed by an incision directly through the skin over the tumor. Here the incision should radiate from the nipple. The same incision should be employed in the doubtful case in which there is uncertainty as to diagnosis.

In doing the radical operation for cancer of the breast there are certain definite surgical principles that must be followed. The entire breast must be removed, the overlying skin widely, the underlying pectoralis major, and if necessary the minor, and the axillary space of the fat and lymphatic glands cleaned out. No fixed set incision should be adopted, but the incision must be planned so that as near as possible the primary lesion will be in the center of the block of tissue removed.

The incision should be planned and can be planned so that in almost all cases a skin closure can be made without tension, making skin grafting seldom necessary. Patients should be sitting up the day after operation and leave the hospital in from ten to twelve days. The mortality is very low. It should not exceed 1 per cent.

PROGNOSIS

What is the prognosis in operations for tumor of the breast? In benign cases there should be no mortality and no recurrence. To be sure, other fibroadenomas may form in that breast or in the other breast, and there may also be a recurrence or a continuation of the same process when a cystic tumor in chronic cystic mastitis has been removed. One seldom sees, however, a carcinoma develop in a breast from which a tumor proved to be benign has been removed. I believe that there is little likelihood of a benign tumor degenerating into a carcinoma. There is one form of tumor, the papillomatous cyst, which is like the papillomatous cyst of the ovary and which, if it is early removed and completely removed, seldom returns, but which may, if it is allowed to remain, develop into a malignant papilloma.

What is the prognosis in cancer of the breast today? In the cases in which the cancerous disease is limited to the breast and the block of tissue removed at operation and the axillary glands are not involved, the prognosis is excellent, probably 75 per cent of cures. In those, on the other hand, in which the axillary glands are involved, it at once sinks to less than 10 per cent of cures; and in the cases in which the glands above the clavicle are involved, it sinks almost to zero. As the patients come to the clinic, in most of them at operation the axillary glands are found to be already involved, and these cases reduce markedly the percentage of permanent cures.

What about roentgen treatment? I believe in a thorough course of roentgen treatment after the operation; not in massive doses but in very moderate doses continued for some time. I have seen great injury done by massive doses—fibrosis of the lungs and extensive burns.

Cancer of the breast can be cured. It can be permanently cured in the cases which are recognized early and in which operation is performed early. I am thoroughly converted to the position that the campaign of education that is being carried on by the Society for the Control of Cancer and by the profession as a whole is leading to earlier diagnosis and more cures, and should receive the support of the entire profession.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. TROUT AND PETERSON AND DR. BEVAN

Dr. Dallas B. Phemister, Chicago: I believe that the indications for radical removal of carcinoma of the breast and *neighboring metastases should* be pushed to the extreme. The operation is neither a dangerous nor a particularly discomforting one. Occasionally it will result in a cure and usually it will prolong life. Also, the conditions for irradiation are more favorable. I want to emphasize what Dr. Bevan said about chronic cystic mastitis. The condition is not a neoplasm and should not be treated by operation. Single lesions may be operated on because of uncertainty of diagnosis, but once the diagnosis is established the subsequent recurrences should be left alone.

Dr. Martin Tinker, Ithaca, N. Y.: A recent paper by Forssell of Stockholm gives a report of the results of the efforts of a nation to combat cancer. He called attention to the fact that certain forms of malignancy are best treated by surgery alone, others by surgery in combination with irradiation, and still others by radium or x-rays alone. It is gratifying, I think, to see that Drs. Bevan, Trout and Peterson, and Phemister all believe that these measures have value, that the chances of cure are being increased by use of radiation in connection with surgery. No one questions, I think, that, in dealing with breast cancer, radical operation is the first thing to consider. If, however, the chances of permanent cure can be added to considerably by the use of radiation, it surely should be considered. For fifteen years I have been combining surgery with radium, more particularly; not that I use radium myself; I think the use of radium or radiology belongs to a group of men who devote their entire time to that line of work; but if radiologic work is turned over to men who are expert, I believe thoroughly that it gives the patient a better chance. Forssell emphasizes this point in his paper that in the institute at Stockholm the best results have been obtained by men who have had experience over considerable periods of time in using radium and x-rays in the treatment of these conditions. A second point is that in many instances a large amount of radium is necessary to produce the best results. Another point that has not been mentioned, but in which many are interested, is the question of electrosurgery. I have been experimenting with electrosurgery for fifteen months, and it seems that sealing lymphatics and blood vessels does add somewhat to the prospect of permanent cure in these cases.

Dr. Jacob H. Vastine, Philadelphia: Recently Pfahler and Parry reviewed 977 cases that had been treated in the office. In the postoperative group, in which radiation therapy was instituted within three weeks after the operation, 62 per cent were alive after three years, and 55.5 per cent were alive after five years. This includes all postoperative cases, both those with and those without glandular involvement at operation. Of the patients who had only the primary lesion and no evidence of metastases in the axilla, supraclavicular glands or elsewhere, there were 96 per cent alive after three years and 87 per cent alive after five years. These are microscopically proved cases and the patients are alive. There is no opportunity for the personal equation to creep in. I feel that these results are gratifying. Dr. Bevan has quoted 75 per cent surgical cures. My five-year cures are 87 per cent. This would indicate that 12 per cent has been added by postoperative irradiation, and I think that that justifies the employment of irradiation as a routine postoperative measure. Dr. Bevan has said that 10 per cent of the cases with axillary metastases can be cured surgically. In my group, those in which axillary metastases were microscopically present in the axilla, with the breast and axilla removed surgically, followed immediately by postoperative irradiation, 63 per cent were alive after three years and 55 per cent were alive after five years. This also would seem to me to indicate that a patient's chances are enhanced by postoperative irradiation. These results cannot be duplicated by a standardized technic and with treatments given in a perfunctory manner by a technician. Each case must be studied carefully, intelligently and individually. The rays must be properly directed and the dosage properly calibrated so that the maximum therapeutic effect is obtained without harm to skin or lung.

DR. F. F. LAWRENCE, Columbus, Ohio: Cancer is no respecter of persons. Cancer of the breast occurs in both male and female. It is no respecter of age. The fallacy of teaching that only people past 35 develop cancer should be emphasized. Cancer in the beginning is painless. Hence a painless lump in the breast should be given careful and thorough attention to make sure that it is not cancer. Metastases are aided by, if not caused by, rubbing or manipulation. Hence, a breast with a lump in it should never be rubbed, massaged or otherwise manipulated. Consequently, the lotion, ointment or other application applied to a breast with the hope of causing absorption should be tabu. Enlargement of the lymphatics is a positive evidence of metastasis. Hence, to wait for a diagnosis of cancer of the breast until there is axillary enlargement is to wait too long. There is no such thing as a cancer cure, that is, a positive cure for cancer, at the present time. The public should be educated to the fakery and dishonesty of all claims of cancer cures. It is to be hoped that research work may soon be effective. What is known about cancer is that it is not a germ disease, that it is not infectious, that it is not hereditary, and that it develops after long continued irritation. Hence, all forms or sources of irritation should be guarded against. It is not known why irritation produces proliferation of epithelial cells in one case, carcinoma and a reversion to embryonic cells in the other, and sarcoma, but it is known that it does. Being painless in the early stages, it has caused many patients to go beyond the operative stage. Hence, it is a safe position to take that every lump of the breast, no matter how small, should be removed and examined. If found benign, well and good. If found suspicious, the breast should be removed. If found positively carcinoma, the radical operation is indicated.

DR. ARTHUR DEAN BEVAN, Chicago: In regard to the anesthetic, I believe that ethylene is an ideal anesthetic for a breast amputation. I like it better than nitrous oxide, because a larger amount of oxygen can be used, and I like it much better than ether. The patient can be kept anesthetized with 20 per cent of oxygen. Ethylene can be used with just as much safety in the operating room as gasoline can be used in the automobile. There are these things, however, that must be recognized and observed: that there must not be any naked flame or cautery in the room, and that static must be done away with. Eight explosions occurred during a period of years when I was beginning to use ethylene, five from ethylene, two from nitrous oxide and one from ether; fortunately, none of these were serious and no patient was injured. In the last two or three years since static has been eliminated, more than 10,000 ethylene anesthesias have been employed without any trouble whatever, and there has been no further trouble with explosions from nitrous oxide and oxygen and ether in the machine. The method is simple. It costs about $35 to equip an operating room. The surgeon operates on a steel mat measuring about 10 by 12, made of rustless steel. This is tied up to the plumbing, a chain from the operating table to the steel mat and from the anesthetizing machine to the steel mat. Then special precautions are taken in regard to the anesthetizing machine itself so as to eliminate static charge from the rubber tubing—steel inside and outside of the tube, and a thin coat of mail around the bag. One thing done in almost all cases unless the evidence is very conclusive is that the woman is brought to the operating room with the knowledge that she is to be operated on for tumor of the breast. The patient is told that the exact character of the tumor cannot be determined until after the operation. It is true that with a little careful study the surgeon who is familiar with gross pathology can probably tell in 95 or, as Francis Carter Wood says, in 98 per cent of the cases the difference between a malignant and a benign tumor on gross section. As a matter of fact, the gross section is much more determining, as a rule, than a frozen section. However, I always use a frozen section whenever there is any indication for it. But carcinoma is typical: there is the same difference between a carcinoma and a fibroadenoma that there is between a turnip and a tomato, and there is no difficulty in ordinary cases in making the differentiation.

DR. HUGH H. TROUT, Roanoke, Va.: The one factor that has contributed most to cancer results is cancer education. The percentages that Dr. Peterson and I gave include all the cases, regardless of whether the axillary glands were involved or not. Speaking of the axillary glands, we failed to mention something that is interesting to us, and somewhat important. For many years we have made serial sections of all the axillary glands in association with cancer of the breast. We have found that about 10 per cent of those which we were able to palpate do not show malignancy in serial section; 90 per cent of them do. It is rather interesting that some of these palpable glands in the axilla are not malignant. Dr. Vastine brought out an important point, one which was mentioned in the paper, and that is the absolute necessity, in order to have irradiation done properly, whether preoperatively or postoperatively, of having it done by a competent radiologist.

SURGERY IN DERMATOLOGIC PRACTICE *

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AND
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Dermatology has evolved from a morphologic study of skin diseases and abnormalities, distinct from medicine and surgery, to the modern conception of cutaneous medicine in which the skin is considered as one of the important organs of the body in intimate physiologic relation with the general economy. This evolution has been accompanied by radical changes in diagnostic and therapeutic methods. The recognition of the relation of many morbid conditions in the skin to underlying disease processes necessitates the application and adaptation to dermatology of many of the modern diagnostic and therapeutic procedures developed in the fields of medicine and surgery during the dramatic scientific progress of the past few decades. It is therefore evident that the dermatologist of today should have a broad training in general medicine and surgery as a foundation for his special training.

From the standpoint of therapy of many cutaneous conditions, surgery in its various forms has long been and still is one of the most useful and effective procedures. Drainage of abscesses by incision and the destruction of skin lesions by cautery are described in the earliest medical literature. Failure to utilize, develop and adapt to the specialty of dermatology the spectacular scientific progress in surgery would seem to be as detrimental as to neglect any of the other valuable therapeutic agents, such as radiation therapy or chemotherapy.

Inquiry indicates that dermatopathology forms a rather meager portion of the surgeon's study of surgical pathology. In fact, dermatopathology is so slighted by the general pathologist that dermatologists have been obliged to develop this field for themselves. With few exceptions, the only authoritative experts on dermatopathology in this country are practicing dermatologists who have made a special study of this phase of pathology. A comprehensive knowledge of the pathology of the conditions treated is just as important to the physician who does cutaneous surgery as to one who operates in other fields.

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* The fields of plastic surgery and cosmetic surgery are not considered in this paper.

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* Read before the Section on Dermatology and Syphilology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

Some dermatologists do not desire to do cutaneous surgery and have not acquired training for it; but even they should be sufficiently grounded in surgery to recognize its indications and what may be accomplished by it. Not all otologists or ophthalmologists do the surgery called for in their respective special fields, but many of them do and these men are usually better trained and experienced in this work than general surgeons.

As a matter of fact, all physicians who limit their practice to dermatology and syphilology have always used some forms of surgery regularly in their practice in the office and in the clinics and will continue to do so. In textbooks on dermatology the surgical procedures of drainage of pyogenic infections, curettage, and the destruction of neoplasms and other tissue by cautery, by surgical diathermy, by electrolysis, by refrigeration and by escharotics, are not listed as surgery although the surgeon utilizes many of these procedures. Many dermatologists use the scalpel for minor operations in the office. Most of the surgery required in dermatologic practice is minor surgery which can be well performed in the office under local anesthesia provided a properly equipped surgical room is available and the dermatologist possesses surgical training and experience.

In view of the fact that surgery is and always has been an integral part of therapy in the practice of dermatology, more than casual attention should be given to it in the presentation of dermatology in medical schools and during the period of postgraduate special training. It is not uncommon to encounter physicians who have entered the specialty of dermatology with little interest and no experience even in minor surgery. Usually these men have planned early on entering the specialty and have not done any general practice. They have not had it brought to their attention that minor surgery in its various forms is used in the everyday practice of the dermatologist. Owing to lack of interest, some of these men have avoided surgical experience. As emphasized by their advisers, they have served internships in services limited to internal medicine. This is excellent preparation, as far as it goes, for the practice of dermatology, but these men now feel the lack of surgical training and experience. If not more than two years is to be spent in hospital training, it *would seem that a rotating* internship would form the better foundation for dermatologic specialization. This rotating service should include laboratory, medicine and surgery. Additional experience in internal medicine is naturally desirable and valuable, as is also some training in other specialties, such as pediatrics, gynecology and obstetrics. In order to be a capable guide for his patients, the specialist in any field should be familiar with the scope of the other specialties. With such broad training, his opinion in consultations is more likely to be sound. Of course, a period of general practice gives valuable practical experience which cannot be obtained in any other way.

The department of dermatology and syphilology of a clinic which makes a point of research and postgraduate teaching should have a well equipped surgical unit. By close cooperation of the surgical unit with the unit of dermatopathology aided by photographic records and follow up of the cases, valuable research may be accomplished. Gross and histologic study of excised neoplasms and other lesions, together with photographs and careful clinical studies of the patients, offers an admirable means of bringing order out of chaos in the understanding of many confusing dermatoses. Such a unit furnishes a means of increasing the knowledge of cutaneous surgery and also an opportunity for the postgraduate student to gain experience in this field. Lectures and demonstrations covering this subject should be conducted by the teaching staff and should include consideration of surgical dermatopathology, indications, technic, postoperative care of wounds, and prognosis. The postgraduate student should be given an opportunity to operate under supervision. All forms of surgery performed in the dermatologic department, such as cautery, refrigeration, electrolysis, surgical diathermy, use of escharotics, injection of varicose veins and scalpel surgery, should be performed in the surgical unit under capable supervision. Surgical procedures utilizing physical agents for the destruction or removal of tissue are probably more functions of the surgical unit than of the unit of physical therapy.

The operations indicated in dermatologic conditions come usually under the arbitrary classification of minor surgery, but this in no way lessens the responsibility of the operator. Even minor operations occasionally result in the tragedy of undesirable or serious complications, or even in the death of the patient. It follows that surgical operations should not be attempted by the dermatologist or by any other physician unless the operator possesses surgical experience and unless proper facilities are available for safe and scientific performance of the operation. The operator should be able to judge the ability of the patient to withstand the shock of the operation. He should know how to minimize shock and how to deal with the various types and degrees of circulatory disturbance, should any of these occur during the operation. This applies to operations by surgical diathermy as well as to operations performed with the scalpel.

A thorough familiarity with the use of local anesthesia together with facility in its administration is essential and is obtainable only by practice and experience. If gas anesthesia or any other general anesthesia is used in the office, it should be administered by a trained anesthetist. General anesthesia is occasionally necessary in minor operations on children and even on adults.

Maintenance of asepsis is almost as important in *minor surgery as in major surgery.* It is therefore mandatory that dermatosurgery in the office or clinic should be done in a properly equipped room and that sterilized supplies and instruments be available. Competent assistance is desirable for maintaining asepsis during the operation. Careful preparation of the skin and protection of the operative field by sterile sheets and towels should not be neglected.

Scalpel surgery has some advantages over other methods of dealing with certain cutaneous lesions which should logically make it the method of choice. It should always be considered when the removal or destruction of a lesion is indicated. The wounds heal more rapidly and the cosmetic result is usually better. These are important considerations, especially to the patient who deplores the time consumed and the expense necessary for numerous office treatments and dressings. The excised tissue may be studied microscopically to prove or disprove the diagnosis and to check up on the complete or incomplete removal of the lesion. Sometimes lesions that are apparently benign prove to be malignant.

We believe there is a tendency to use surgical diathermy too much as a matter of routine in the destruction of cutaneous lesions. Too often the destruction is not thorough enough or, on the other hand, there is excessive destruction of normal tissue with unnecessary scarring and prolongation of the period of healing. Often, in potentially malignant lesions, the tissue destroyed or removed is not checked microscopically for diagnosis or is so damaged by the high frequency current as to render a histologic diagnosis impossible.

In the following list are some of the many cutaneous lesions for which scalpel surgery should be considered as a method of removal even though it may not be the method of choice:

- Biopsies to prove or establish diagnosis.
- Benign neoplasms:
  - Adenoma.
  - Fibro-adenoma.
  - Fibroma.
  - Lipoma (circumscribed).
  - Neuroma.
  - Neurofibroma.
  - Nevi of various types.
  - Xanthoma—xanthelasma.
  - Fibro-xanthoma.
- Cysts of various types:
  - Sebaceous cysts.
  - Dermoid cysts (subcutaneous).
  - Mucous retention cysts.
  - Synovial cysts.
- Malignant neoplasms:
  - Sarcoma of various types.
  - Epithelioma.
  - Melanoma.
- Granulomas occupying small areas:
  - Lupus vulgaris.
  - Tuberculosis verrucosa cutis.
  - Blastomycosis.
  - Actinomycosis.
- Sequelae of irradiation:
  - Ulcers.
  - Atrophic or sclerotic tissue.
  - Keratoses.
  - Epithelioma.
- Verruca plantaris and other verrucae.
- Chronic ulcers.
- Diseased or deformed toenails and fingernails.
- Scars—unsightly and interfering with function.
- Tattoo—small.

In addition, small plastic operations and skin grafts, especially Thiersch grafts, may be performed in the office under local anesthesia if the operator is experienced in these procedures. Keloids (large, old and thick) may be excised or pared down and recurrence prevented by subsequent roentgen or radium therapy.

The dermatologist should be experienced with all surgical methods, physical and scalpel, and with all conventional methods of treatment. In this way he will be able to select the method that offers, in his judgment, the best result in the individual case, rather than always using the one method with which he has had experience. Such choice of method will eventually lead to improved statistics. A broad training of this kind makes dermatology more comprehensive.

We believe that the surgically trained dermatologist can obtain better results in some cutaneous conditions than does the general surgeon—i. e., keloid, moles, and the like—because in order to obtain superior results in such conditions it is necessary to know clinical dermatology, dermatopathology and surgery. We predict that the dermatologist of the future will possess adequate surgical ability. It is to be hoped that the dermatologist will not make the mistake in surgery that has been made in radium therapy. He now knows that he should not attempt to treat a really malignant neoplasm with an inadequate amount of radium and with inadequate experience and equipment. Of course, major surgery will never be a part of dermatology any more than is major high voltage roentgen therapy.

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ABSTRACT OF DISCUSSION

Dr. Fred Wise, New York: The various points brought out by Drs. MacKee and Stone are so clear-cut and obvious that only an elaboration of their views is indicated in a discussion of the subject. To keep pace with the rapid advances in the practice of dermatology, the successful dermatologist of today must evidently be "on his toes" from dawn to midnight. It must be borne in mind that a great many of the routine therapeutic procedures in offices and clinics are pure surgical operations which have become commonplace only through familiarity and constant repetition. I am thinking particularly of intravenous and intramuscular injections, curettage, electrolysis, monopolar desiccation, and the like. These are all relatively simple operations, but they all require knowledge and skill of a high order. The removal of tissue for microscopic examination, especially from the mouth and the genital regions, and from the vicinity of the eye, must never be relegated to the inexperienced youngster with an excess of confidence in his skill. This refers especially to work in clinics, where younger men should be on probation until they acquire a sufficient amount of experience in minor surgical technic. We have established a rule at our clinic, calling for experience on the cadaver, in the technic of cisternal puncture, before permitting this operation to be carried out on our patients, and I think it is a wise rule and that it should apply as well to spinal puncture technic. The injection treatment of varicose veins is being taken up more and more by dermatologists, chiefly because of our frequent contact with varicose eczemas, ulcers, and chronic lichenification of the legs. I need not emphasize the fact that this type of work should never be undertaken by any one who is not possessed of considerable skill in minor surgery, as unskilled work may result in grave consequences. The surgical treatment of malignant lesions especially of the face, and particularly near the eye and the lips, calls for a well grounded and thorough knowledge of minor surgical technic. If undertaken by the unskilled, ectropion of the eyelids and distortion of the mouth may often result. With regard to the surgical treatment of melanotic lesions, I believe that the responsibility should always be shared with one or more surgeons of recognized ability and sound judgment. These lesions belong on the borderline between minor and major surgery.

Dr. Joseph R. Grindon, St. Louis: Some of our members whose brains extend to the tips of their fingers can probably do surgical work effectively in dermatologic cases. Most of us, however, who are not using the strict surgical precautions every day, and who have not the opportunity to keep in training, should let these things alone. I believe this is a very good rule.

Dr. Everett S. Lain, Oklahoma City: The authors are to be complimented for calling attention to the fact that the successful dermatologist should be trained in minor surgery. In recent years he has made great progress in radiotherapy, which has brought him in touch with superficial malignant growths. The dermatologist has realized that many of these lesions need both irradiation and surgery. Drs. MacKee and Stone have well called attention to those cases in which surgery is indicated. I wish merely to emphasize the work that dermatologists are now doing with the late models of the endotherm machines or bipolar diathermy. This technic is considered applicable to many of those lesions needing both radiotherapy and surgery. The machines are convenient and rapid in operation and as a rule their use results in an almost bloodless field. This technic is being used only after proper irradiation with radium or roentgen ray. I would further emphasize the precautions mentioned by Dr. Wise regarding melanomas. I consider that this type of tumor should always be treated surgically. I favor some form of coagulative treatment, either the surgical diathermy or bipolar coagulation. The principal disadvantage of such treatment is the slowness of healing. In some instances the sutures do not hold because of the extensive devitalization of tissue that results in retraction and delayed healing. Experience has shown that, through the use of nonabsorbable sutures placed far back from the border, satisfactory healing can be obtained. This difficulty, I understand, is now being overcome by a machine that does not devitalize the tissues for more than 1 mm. from the incision.

Dr. F. J. Eichenlaub, Washington, D. C.: Some of the rectal anesthetics are very satisfactory to use for some of the operations about the mouth, particularly carcinoma of the tongue. They displace chloroform and ether and gas, which does not give relaxation, and good work can be done with such an anesthetic.

Dr. Walter J. Highman, New York: I hope that dermatologists will become the kind of surgeons Drs. MacKee and Stone pointed out, but I should hate to see surgeons become dermatologists. Surgery of the skin began modestly in the boudoir with a lady, an acne pustule and a needle. Today dermatology is largely a matter of relieving skin disturbances by any methods we can master. One of the methods is minor surgery in all its ramifications, including elaborate machinery and modest escharotics in the chemical group. Obviously, it is necessary to master this type of therapy, just as much as I believe a chauffeur should understand the method of getting his car going on the road when there is no sign of a service station. I agree with the authors that the dermatologist of the future should be as capable a surgeon as he must be a chemist and a pathologist. In spite of my fulmination against the mechanistic era I still concede that machinery has virtue, as much as endocrinology, for example, and I wish enthusiastically to endorse what Drs. MacKee and Stone pointed out, that the time is over when a fountain pen, a prescription pad and Latin terminology are sufficient for the entire dermatologic approach to patients suffering from skin diseases. I am entirely in accord with the surgical point of view that has been advocated by the authors.

Dr. George M. MacKee, New York: I agree with Dr. Wise as to the advisability of a consultation before treating melanoma, but only because of medicolegal protection—division of responsibility—as in many other diseases and branches of medicine. I think that the dermatologist should be, and eventually will be, just as capable, if not more so, of removing a melanoma by scalpel surgery or surgical diathermy as is the general surgeon. A great deal is heard about the necessity for enormously extensive excisions in the case of malignant and potentially dangerous lesions. I have seen lesions the size of split peas removed by excising an area the size of an adult hand. Accurate judgment is called for here—judgment based on a knowledge of cutaneous pathology, clinical dermatology and the principles of surgery. Of perhaps greater importance is the depth of the excision. The pathologic cells often, even in a clinically superficial lesion, extend downward and outward along nerves and vessels to the muscle; therefore, the excised tissue should be roughly triangular, with the blunt apex of the triangle upward. Another reason why we believe that adequately trained dermatologists are better able to handle the many dermatosurgical conditions is illustrated by keloid and hypertrophic scars. Few surgeons know how to treat these conditions. Most surgeons believe that hypertrophic scars are due to tension. Many of them are due to this cause and some of them will disappear spontaneously regardless of the cause. However, many hypertrophic scars will not improve without proper treatment. Such lesions can be greatly improved and keloids can be prevented by using radium or the roentgen ray at the proper time. Very thick keloids often cannot be eliminated with an amount of radiation that can be judiciously administered. The properly trained dermatologist will excise the lesion with scalpel surgery if it is of suitable size and location. If the lesion is extensive and thick, he will pare it down with a scalpel or with surgical diathermy. Finally, he will employ radium or the roentgen ray at the proper time and in the proper manner to avoid recurrence. It should be emphasized that those not surgically trained should not attempt scalpel surgery. I predict that in the future most if not all surgery that can be called dermatosurgery will be performed by dermatologists.

ROENTGENOLOGY OF THE UPPER RESPIRATORY TRACT

WITH ESPECIAL REFERENCE TO THE LARYNX AND ADJACENT STRUCTURES *

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The upper respiratory tract, from the nasopharynx to the carina, has recently become a very important field for roentgenologic diagnosis. The most important factor in diagnosis is a careful study of the soft structures during an examination of the neck. This includes fluoroscopic observations of the movements or changes in lumen of the various portions of the tract during respiration, speech and swallowing, and the making of roentgenograms for records. In all instances the chest should be included, and especially in infants and young children.

It seems strange that, following Scheier's studies of speech mechanism in 1909[1] and of the swallowing act in 1911,[2] the publication of Thost's beautiful atlas[3] recording his observations on the normal and pathologic larynx in 1913 and Iglauer's[4] pioneer work in this country in 1914, the subject of diagnosis of diseases of the upper respiratory tract by roentgen methods should have lain almost dormant for several years, at least in America. Sporadic articles have appeared more recently on different phases of roentgenology of the upper respiratory tract or the neck, as by Pfahler[5] on the thyroid, Iglauer and Ransohoff[6] and Tucker[7] on retropharyngeal abscess, Manges[8] on nonopaque foreign bodies in the trachea, Barclay[9] on phonation, and more recently by Hickey[10] and Brown and Reineke[11] on the general examination of the cervical portion of the respiratory tract. The first collective studies of the entire upper air passages and the soft tissues of the neck seem to have been made by Hay[12] from the normal and pathologic material in our department. Since the beginning of Hay's work, the members of our staff have realized that the only way of determining accurately the potential dangers of the thymus in infancy is through a study of its effects on the upper respiratory tract and not by an estimation of its dimensions.[13]

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* From the Department of Roentgenology, University of Pennsylvania Medical School.

* Read before the Section on Laryngology, Otology and Rhinology at *the Eighty-First Annual Session of the American Medical Association*, Detroit, June 26, 1930.

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In all examinations of the neck, fluoroscopy is the first procedure. The eyes should be accommodated first until it is possible to see the ventricles of the larynx. After a general survey of the region with the head in the midposition, the patient is directed to pronounce certain vowel sounds, and the changes in the appearance of the ventricles are noted. The air-containing, zeppelin-shaped cavity of the ventricles should be shown clearly if the larynx is normal. Seeing it without deformity practically excludes any severe inflammatory condition in the larynx and any growth in the region of the cords. If it is not visible, one is justified in assuming the presence of a growth, inflammatory process or paralysis of the vocal cord.

The next observation should be made of the arytenoid cartilages, which move with speech and change their relations with swallowing. They are seen easily in the normal subject because they are well surrounded by air. Being under control of practically the entire musculature of the larynx, and subject to lateral and sagittal movements, they will vary considerably in appearance and position in roentgenograms; hence fluoroscopic observations of their movability and configuration are necessary in the final interpretation. They may appear thick or thin and clean cut under different circumstances.

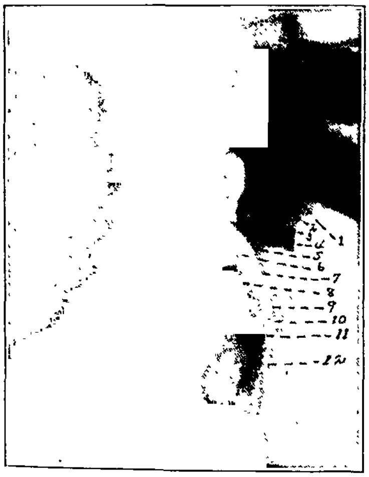
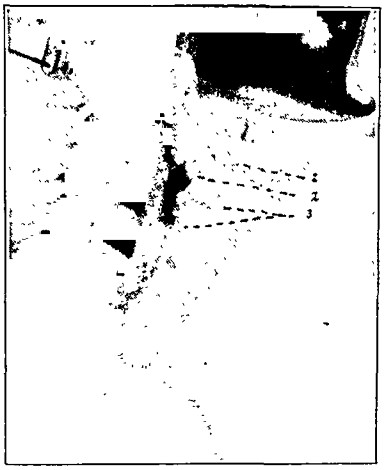


Fig. 1.—Normal neck of a woman, aged 29: 1, soft palate and uvula; 2, posterior border of tongue and pharynx; 3, epiglottic vallecula; 4, hyoid bone; 5, epiglottis; 6, aryepiglottic folds, with pyriform sinuses behind and below; 7, vestibule of the larynx; 8, arytenoids; 9, ventricular bands; 10, ventricles; 11, vocal cords, partly overshadowed by the cricoid; 12, trachea.



of a woman, aged ossification of the thyroid cartilage; [illegible] articulation of one with the cricoid; 3, cricoid, wide posteriorly, and partly covered by lower border and lower cornu of thyroid.

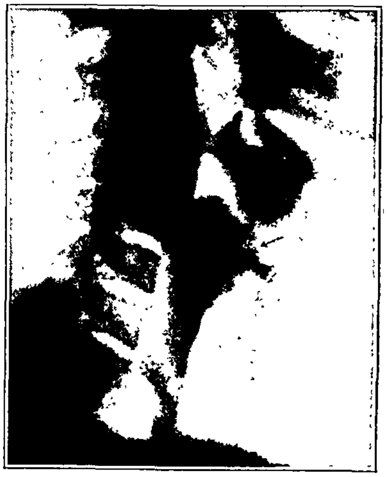


Fig. 3.—Early carcinoma of vocal cord, junction of anterior and middle third, projecting upward into the ventricular space. (Could be seen by fluoroscope.) The outlines of the ventricles are hazy. Confirmed by endoscopy and removed. Biopsy, early carcinoma. Chief complaint, hoarseness for eight months. (Referred by Dr. Tucker.)

The lumens of the pharynx, pyriform sinuses, vestibule of the larynx and the trachea should be carefully noted. All of the structures so far mentioned are seen easily if the eyes are properly accommodated. They are always recorded in the final roentgenogram (fig. 1).

The next procedure is a study of the swallowing mechanism, for the determination of the integrity of the motor mechanism of the pharynx, larynx and upper esophagus; the movability of the epiglottis, arytenoids and the entire larynx; the outlining of growths on the tongue, in and around the epiglottis, the pyriform sinuses and the upper esophagus, and, finally, the patulousness of the food passage. Before studying the swallowing act, one should note particularly the relations between the arytenoids and the epiglottis, the position of the latter and the level of the larynx. Ossification is a great aid in making the larynx visible, and in persons as young as 17 or 18 years, the beginning centers in the posterior ring of the cricoid may be seen.

On the basis of the observations of my colleagues and myself we have divided the swallowing act into five stages, as follows:

1. Preparation for the act. The mouth is seen filled with the opaque liquid mixture. The base of the tongue moves back toward the postpharyngeal wall.

2. As the opaque mixture begins to enter the pharynx, the base of the tongue moves back farther and pushes the epiglottis back slightly. Coincidentally, the larynx rises and the arytenoids come in contact with the under surface of the edge of the epiglottis. We have concluded that the tongue and not the food bolus causes the slight backward tilt of the epiglottis.

3. The peak of the act. As the pharynx becomes filled, the oropharynx is completely obliterated, the larynx is elevated still farther and the arytenoids and epiglottis cannot be differentiated. The hyoid bone is considerably raised.

4. The food has passed into the esophagus and the pharynx and pyriform sinuses are empty. The larynx has descended slightly and the arytenoids have separated from the epiglottis, which has raised to its normal position. The hyoid bone has descended.

5. The swallowing act is completed and all of the structures have returned to their normal relations.

We have observed the foregoing phenomena fluoroscopically and have been able to record the stages by roentgenograms. The opaque mixture used has been a thin suspension of bismuth, just thick enough to cast a perceptible shadow and not to obscure the various structures that should be studied. The soft, pliable wafer employed by Scheier[2] has not been tried, but its use is contemplated in order to observe any possible differences in details of the mechanism that may depend on boluses of different consistencies. Sometimes it is advantageous to use a bismuth capsule in order to study abnormalities of the swallowing act.

After the fluoroscopic study has been completed, a lateral roentgenogram of the neck is made, and the exposure is timed to occur during phonation of a vowel sound. I had always used the vowel E until Dr.

Hickey[14] convinced me that the ventricles could be shown to better advantage during the phonation of A. If any abnormalities of the swallowing act or any evidences of an extrinsic lesion or an advanced intrinsic laryngeal lesion have been noted or suspected fluoroscopically, another lateral roentgenogram is made after the swallowing of a small amount of opaque liquid or a bismuth capsule, according to the special indications. The roentgenograms are interpreted in conjunction with the recorded fluoroscopic observations.

After one has become thoroughly familiar with normal fluoroscopic and roentgenographic appearances it is possible to apply this knowledge to the detection of a large number of pathologic conditions involving the upper respiratory tract, the esophagus and the soft tissues of the neck. There are so many conditions that can be detected that this presentation must be limited to the larynx.

THE NORMAL LARYNX

In the roentgenograms of the normal neck (fig. 1) the following structures should be recognized readily: the soft palate, posterior border of the tongue, epiglottis and vallecula, pharynx, pyriform sinuses and the retropharyngeal, retrolaryngeal and retrotracheal soft tissue spaces. In connection with the larynx directly, one should see the vestibule, arytenoids, aryepiglottic folds, ventricular bands and the ventricles. All paired structures are superimposed. The upper border of the shadow of the vocal cords should be visible, but their lower portions are usually obscured by the cricoid cartilage. The thyroid and cricoid cartilages often can be differentiated without ossification, but its presence aids considerably. Ossification was first studied extensively by roentgenographic means by Fraenkel,[15] in 1908. It is readily shown at the earliest stages and there is no reason why present textbook anatomic knowledge of this subject should not be checked up by extensive roentgen examinations of a large number of living subjects. The trachea is always easily seen.

Tumors of the Larynx.—There are five appearances by which laryngeal neoplasms may be recognized. These may be summarized as follows:

1. Direct evidence of a localized nodule encroaching on the air space of the vestibule, ventricles or subglottic region (figs. 3 and 4). Benign tumors are usually clean cut in outline and distinctly localized, whereas malignant growths are hazy and fade off gradually into the surrounding structures, which also are hazy, as the result of infiltration, edema or inflammatory reaction.

2. Obliteration of the ventricles. Inability to demonstrate the ventricles implies either a growth, inflammatory condition or paralysis of a vocal cord and calls for a laryngoscopic examination (fig. 5).

3. Irregularity, haziness or change in direction of the normally clean cut horizontal line at the lower border of the larynx (figs. 1 and 5). A change in the direction of the line must not be confused with the slant of a visible lower border of the cricoid cartilage.

4. Complex changes in appearance due to extensive growths. These may be various encroachments on the air spaces, thickening of structures, defects due to destruction of tissue, distortions and displacements (figure 6).

5. Infiltration of cartilage. This cannot be determined unless there is extensive ossification, which, however, is usually irregular and deceptive. One is never justified in interpreting erosion unless the adjacent soft tissues are swollen and hazy. We have rarely felt justified in interpreting it.

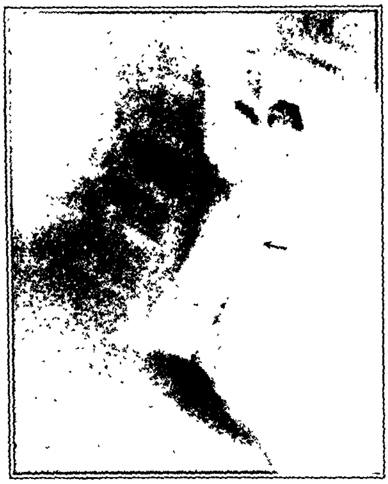


Fig. 4.—Pedunculated benign tumor of vocal cord, encroaching on the lumen of the trachea. Confirmed by endoscopy and removed. Biopsy, benign tumor. Chief complaint, hoarseness for two years. (Referred by Dr. Jackson.)

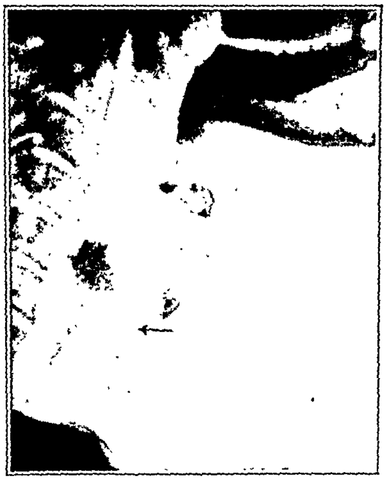


Fig. 5.—Carcinoma of vocal cord. Encroachment on air space below the larynx and absence of ventricles. Endoscopy, extensive infiltration and ulceration involving right cord. Biopsy, squamous carcinoma. Hoarseness one year, weight loss and recent dyspnea. (Referred by Dr. Jackson.)

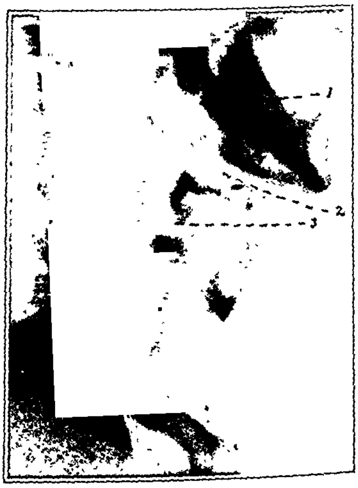


Fig. 6.—Extensive carcinoma involving the soft palate, 1; base of tongue, vallecula and epiglottis, 2; postpharyngeal wall on one side, pyriform sinus, 3; arytenoids, extending down farther into larynx, with obliteration of ventricles. This diagnosis was made before the extent of the lesion was known clinically. Biopsy, squamous carcinoma. Patient consulted physician because of swelling in neck. (Referred by Dr. Muller.)

Paralysis of the Vocal Cords.—In every case with paralysis of the vocal cord examined in our clinic with a view of making a diagnosis of a laryngeal condition there has been observed some deviation from the normal in the appearance of the ventricles (fig. 7). The following different appearances have been noted:

1. Half zeppelin shape, the lower half being obliterated. A similar appearance is sometimes noted in normal individuals in whom the cricoid is dense, but the half space is wider than in paralysis of the cord.

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[14] Hickey, P. M.: Personal communication to the author.

[15] Fraenkel, E.: Ueber die Verknöckerung des menslichen Kehlkoffs, Fortschr. a. d. Geb. d. Röntgenstrahlen 12: 152-168, 1908.

2. The zeppelin shape can be made out, but the posterior half of the space is closed on one side by a contraction upward of the lower part of the posterior portion. In both of these types the borders of the space are clean cut, and not hazy as when the deformity is due to growth.

3. Complete obliteration of the space. In such cases the appearance cannot be distinguished from an inflammatory condition or a growth.

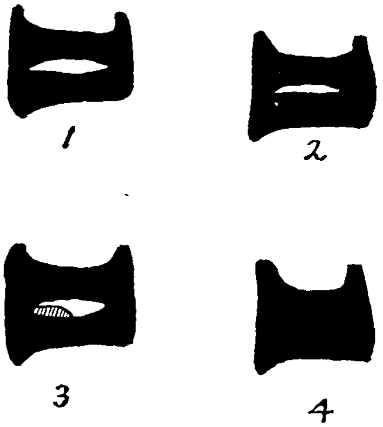

Fig. 7.—Various appearances of the ventricles in vocal cord paralysis: 1, the zeppelin shaped normal ventricles; 2, the half zeppelin shape noted in some cases; 3, contraction of the lower part of the posterior portion on one side; 4, complete obliteration.

Cases of bulbar paralysis present interesting phenomena which will usually lead one to suspect the condition after a study of the movements of phonation and swallowing. There is not found any local evidence of disease or neoplasm, so that the diagnosis is to be made by exclusion. In connection with paralysis of the cord, it has not been possible to identify any of the appearances found with any particular form of involvement of the nerves. The arytenoids do not seem to show any characteristic appearance, location or disturbance in movements.

Inflammatory Conditions.—These include acute laryngitis, streptococcic laryngitis, acute laryngeal diphtheria, postdiphtheritic stenosis, posttyphoidal perichondritis, syphilis and tuberculosis.

In severe acute laryngitis, the outlines of the air spaces are hazy and the ventricles may be obliterated.

In one case of streptococcic laryngitis there was obliteration of the ventricles, haziness of the arytenoids and a general blurring of the outlines of the vestibule.

A single case of acute laryngeal diphtheria showed swollen arytenoids, retrolaryngeal swelling, obliteration of the ventricles and narrowing of the upper end of the trachea. The differentiation between the three conditions just mentioned is not clean cut, and the best one can do in children is to render a diagnosis of an inflammatory condition requiring direct laryngoscopy.

The presence and extent of postdiphtheritic stenosis is always well demonstrated by fluoroscopy and roentgenograms. There is obliteration of the ventricles and narrowing of the vestibule of the larynx. The characteristic feature is the narrowing or complete obliteration of the lumen of the upper trachea, which becomes either the shape of an inverted funnel, narrowed down almost to a point or entirely shut off for some distance below the larynx. The loose tissue in the conus elasticus from the cords to the first tracheal ring is the seat of the most intense inflammatory reaction and subsequent contraction, and there may be a perichondritis of the cricoid; hence the seat and appearance of the stenosis (fig. 8).

In one case of posttyphoidal stenosis of the larynx there was an absence of the ventricles and disturbed motility of the arytenoids with general blurring of the outlines. Endoscopy showed perichondritis of the larynx and fixation of the left arytenoid. This case did not have the typical appearance of the upper trachea seen in postdiphtheritic stenosis, and there was nothing really characteristic of the condition.

In the many cases of tuberculous and syphilitic laryngitis studied nothing was found that could be regarded as characteristic of the disease or differing from the appearances of many malignant growths. Roentgenologic evidence of pulmonary tuberculosis will have an important bearing on the diagnosis.

SPEECH MECHANISM FOLLOWING LARYNGECTOMY

Through the courtesy of Dr. Fielding O. Lewis, the speech mechanism of two cases following some time after laryngectomy for carcinoma was studied in our clinic. The following mechanism in the first patient was observed fluoroscopically and recorded roentgenographically, as previously reported in detail:[12]

First stage, filling of the pharyngeo-esophageal reservoir with air.

Second stage, fixation of the muscles of the pharynx and upper esophagus. The cricopharyngeus appeared as a distinct band at the lower end of the space and separated the upper cavity from the esophagus.

Third stage, firm contraction of the cricopharyngeus at the beginning of speech, which consisted in counting from one to eight, and a decrease in size of the reservoir.

Fourth stage, complete collapse of the reservoir at the count of eight and exhaustion of all available air.

The second case presented essentially similar phenomena, although the procedure differed somewhat in minor details. He did not fill the reservoir so full of air, but could keep up a continuous supply and was able to talk continuously by taking air in through his nose. He did not, therefore, present the definite stages of the first case. There were, in addition, certain psychologic elements in the technic of more importance to the individual than of scientific interest or, perhaps, of necessity.

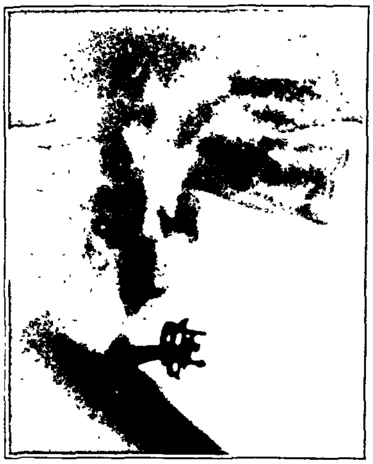

Fig. 8.—Complete postdiphtheritic stenosis of larynx and upper trachea.

CONCLUSIONS

The portion of the upper respiratory tract in the neck has been a neglected field for roentgenologic study.

Practically all of the pathologic conditions presented by the larynx and neuromuscular disturbances show some recognizable phenomena or abnormal appearances, many of which are characteristic.

The examination must be both fluoroscopic, for studying moving parts, and roentgenographic, for purposes of record and finer details.

The study of phonation and the swallowing act is essential in all cases. Both of these functions are described.

3400 Spruce Street.

THE DIAGNOSIS OF LARYNGEAL DISEASE

LARYNGOSCOPIC APPEARANCES CORRELATED WITH ROENTGENOLOGIC OBSERVATIONS *

CHEVALIER LAWRENCE JACKSON, M.D.
PHILADELPHIA

Hoarseness, the most common symptom of laryngeal disease, always calls for careful diagnostic study. Too often patients with this complaint are sent away with a casual diagnosis of "laryngitis." As a result, the patient with early and easily operable cancer, or incipient tuberculosis, is allowed to go on for months without an accurate diagnosis and appropriate treatment.

The complaint of hoarseness calls for the following diagnostic studies:

1. A complete history.
2. Mirror laryngoscopy.
3. Roentgenographic study of the neck and chest, and in most cases also of the sinuses.
4. Complete general physical examination with particular attention to the chest.
5. Blood Wassermann test.
6. Sputum analysis.
7. Direct laryngoscopy (if indicated).
8. Biopsy (if indicated).

After the taking of the history, the first step in the diagnosis of laryngeal disease is to look at the larynx. This can be accomplished by the indirect method in almost all adults and older children. If the mirror view is satisfactory, it may or may not be necessary to do a direct laryngoscopy in addition. A satisfactory mirror view will usually justify a tentative diagnosis. Laryngoscopic appearances may be quite characteristic in such conditions as cancer, tuberculosis, benign neoplasms, vocal nodules, or recurrent paralysis. In almost all cases, however, this diagnosis must be regarded as only a tentative one, and further studies carried out.

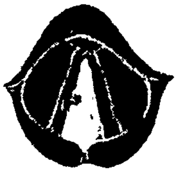
Fig. 1 (case 1).—Small growth on right vocal cord.

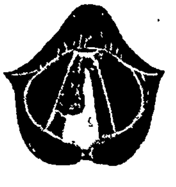
Fig. 2 (case 2).—Growth attached to anterior half of right cord.

Of these, one of the most helpful is the roentgenographic examination. The roentgen ray has for a long time been of the greatest help in laryngeal diagnosis, by showing the presence or absence of tuberculous disease in the chest, and, in cases of laryngeal paralysis, by showing an aneurysm, subternal goiter, mediastinal neoplasm, or other lesion involving or pressing on the recurrent laryngeal nerve. The recent work of Pancoast and Pendergrass has developed the roentgenology of the neck to such a degree that the fluoroscopic and roentgenographic study of the larynx itself is of the greatest importance in diagnosis.

REPORT OF CASES

The cases discussed in this paper were selected from a series studied in consultation with Dr. Pancoast. The laryngoscopic appearances illustrated are those seen on indirect examination. In a number of the cases direct laryngoscopies were subsequently done, for biopsy or for treatment. I am indebted to Dr. Gabriel Tucker for access to some of the clinical material.

BENIGN NEOPLASMS

Case 1.—D. P., a woman, aged 32, complained of hoarseness of two months' duration. Mirror laryngoscopy showed a small growth on the right vocal cord. Roentgenographic examination showed the shape of the ventricle of the larynx to be abnormal, "suggesting a monolateral laryngeal lesion." The blood Wassermann reaction was negative. Direct laryngoscopy was done for the removal of the growth, which on histologic examination was proved to be benign in character.

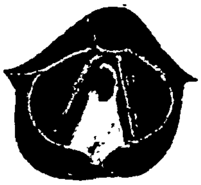
Fig. 3 (case 3). — Irregular growth in anterior commissure, attached to right cord.

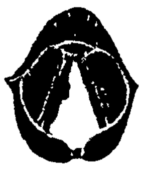
Fig. 4 (case 4).—Irregularity of surfaces of right cord, with mass attached to free margin of right cord at junction of anterior and middle thirds.

Case 2.—W. M., a man, aged 36, complained of hoarseness of ten years' duration. Mirror examination showed a growth attached to the anterior half of the right cord. Roentgenographic study showed obliteration of the ventricle. The blood Wassermann reaction was negative. This growth was removed by direct laryngoscopy and microscopic examination showed it to be a soft fibroma.

Case 3.—C. S., a woman, aged 27, complained of hoarseness of about eight months' duration, and some loss of weight. Mirror laryngoscopy showed an irregular pinkish growth in the anterior commissure, apparently attached to the right cord. The growth was removed by direct laryngoscopy, and the pathologist reported it to be an angiomatous polyp.

Case 4.—K. C., a man, aged 62, dated symptoms from a "heavy cold," eight months before. There was a previous diagnosis of papilloma, and several unsuccessful efforts had been made to remove it. Mirror laryngoscopy showed considerable irregularity of the surfaces of the right cord. An irregular mass the size of a coffee-bean was attached to the free margin of the right cord at the junction of its anterior and middle thirds. Roentgenographic examination of the larynx showed a small growth on the vocal cord at the junction of its anterior and middle thirds, as indicated by encroachment of a mass of soft tissue on the lumen of the ventricle. General physical examination by Dr. Kern showed nothing abnormal except for slight generalized adenopathy. The blood Wassermann reaction was negative. Direct laryngoscopy was done and a specimen taken for histologic examination. There was some suspicion of early malignant changes, and the patient was asked to return in one month. He did so and another specimen was taken, which showed only inflammatory reaction. The appearance of the lesion had greatly improved. The patient was instructed to keep his larynx under the close observation of his physician and to avoid all forms of vocal abuse.

CANCER

Case 5.—C. G., a man, aged 41, dated hoarseness back about one year. There was a complaint also of "dull pain in the throat." The patient thought his trouble followed a "cold." Huskiness of voice persisted in spite of medication. Mirror examination showed a small irregular tumor mass just under

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* Read before the Section on Laryngology, Otology and Rhinology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

the edge of the left vocal cord. Roentgenographic study of the neck showed an inflammatory or neoplastic process in the region of the larynx. The ventricles of the larynx were not visible. The diagnosis of cancer was subsequently confirmed by biopsy, and a laryngofissure performed.

CASE 6.—M. H., a man, aged 64, complained of hoarseness for the past two months and a slight feeling of soreness in the throat. Mirror examination showed a lesion involving the entire left cord. It was rather pale and showed an irregular ulcerated surface. The motility of the left cord seemed slightly impaired. Roentgenographic study of the neck showed absence of the ventricle, suggesting infiltration from a growth in that region. On physical examination, Dr. Perry Pepper found the patient in excellent general condition. The blood Wasserman reaction was negative. Direct laryngoscopy showed the lesion to extend well back to the posterior commissure, and slightly subglottic. A specimen was removed for biopsy, and the pathologist's report was squamous epithelioma. Laryngectomy was performed, as the lesion was too extensive for laryngofissure.

CASE 7.—E. E., a man, aged 45, complained of hoarseness of three years' duration. Operation had been advised a number of times, but the patient had refused. He now became alarmingly short of breath. Mirror examination showed a large irregular mass beneath the epiglottis, extending entirely across its base and overhanging the glottis. The mucosa covering the mass was ulcerated and bleeding. There was no impairment of the motility of the arytenoids. Palpation of the neck showed the contour of the larynx to be irregular, and there was a soft bulging over the cricothyroid membrane. Roentgenography of the neck showed swelling of the soft tissues in front of the thyroid cartilage. There was obliteration of the ventricle, and an irregularity in the density of the thyroid cartilage, suggesting infiltration from a growth or inflammatory process. The blood Wassermann reaction was negative. Direct laryngoscopy was done and ample specimens were removed for biopsy. The pathologist reported squamous epithelioma.

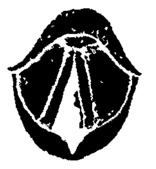
Fig. 5 (case 5).—Small tumor mass just under edge of left vocal cord.

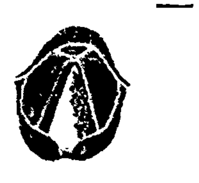
Fig. 6 (case 6).—Lesion involving entire left cord.

TUBERCULOSIS

CASE 8.—J. R., a man, aged 51, complained of difficulty in swallowing, and pain in the throat. Mirror laryngoscopy showed an ulcerative lesion on the internal surface of the tip of the left arytenoid, about half the size of the little finger nail, with an infiltrative base. The surface was pale and granular. Roentgenographic examination of the chest showed extensive infiltration, with some cavitation in both upper lobes. The trachea was retracted to the right. Roentgenographic study of the neck showed abnormality in the region of the larynx also, and a diagnosis of pulmonary and laryngeal tuberculosis was made. The blood Wassermann reaction was negative. In the absence of positive sputum it was thought advisable to remove a specimen for biopsy. This was done by direct laryngoscopy, and the pathologist reported chronic inflammatory tissue with tubercles containing giant cells, though special staining of the tissue for tubercle bacilli gave negative results.

CASE 9.—J. M., a man, aged 33, developed pulmonary tuberculosis, with positive sputum, about two years before I first saw him. He had had hoarseness for about ten months. Mirror laryngoscopy showed an ulcerative lesion involving the posterior commissure and extending forward on both cords, for approximately their posterior thirds. There seemed to be no impairment of motion of the arytenoids. The local appearances had the characteristics of a tuberculous lesion. Roentgenographic examination showed an infiltrative inflammatory process in the region of the larynx, and a diffuse infiltration through both lungs, especially the upper lobes. The diagnosis was pulmonary tuberculosis with secondary involvement of the larynx.

SYPHILIS

CASE 10.—B. C., a woman, aged 44, was severely dyspneic when admitted to the hospital. This attack was only of two days' duration, but there had been previous attacks. Mirror laryngoscopy showed the left cord to be almost motionless, and in the subglottic region, just below the left cord, there was a red swelling. The airway was markedly reduced. Roentgenography showed a definite narrowing of the airway just below the ventricle of the larynx, as well as increased width of the upper portion of the post-tracheal space. The blood Wassermann reaction was strongly positive and the diagnosis was syphilitic perichondritis. Tracheotomy was performed for the relief of dyspnea and antisyphilitic treatment begun. The patient was subsequently decannulated.

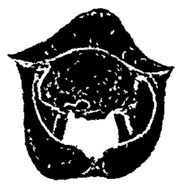
Fig. 7 (case 7).—Mass beneath epiglottis, overhanging the glottis.

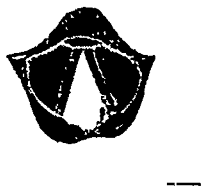
Fig. 8 (case 8).—Lesion on internal surface of tip of left arytenoid.

PARALYSES

CASE 11.—A. G., a man, aged 57, had been annoyed for fifteen months by a sensation of "lump in the throat." The onset was very vague. At times he had pain on swallowing. Mirror laryngoscopy when the patient was first seen was negative. On fluoroscopic study, slight hesitation of the opaque capsule was noted at the level of the suprasternal notch. Physical examination by Dr. George M. Piersol showed the patient to be in quite good general condition. The blood Wassermann reaction was negative. Mirror examination a short time later showed posticus (abductor) paralysis of the right vocal cord (fig. 11 *A*), and direct examination of the hypopharynx and esophagus was advised. At direct examination the larynx was lifted forward with an adolescent laryngoscope, and an ulcerating, fungating mass was found on the posterior esophageal wall, just back of the cricoid cartilage. A specimen of tissue was removed for microscopic examination and the pathologist reported squamous epithelioma. Roentgenography showed an increased retrotracheal space. The patient finally developed a bilateral cord paralysis, requiring tracheotomy. The drawing (fig. 11 *B*) shows that the right cord has become cadaveric, while a posticus (abductor) paralysis of the left cord has developed in addition. (Both *A* and *B* show the glottis on full inspiration.)

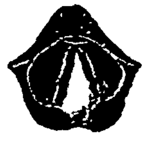
Fig. 9. (case 9).—Lesion involving posterior commissure and extending forward on both cords.

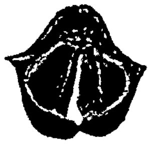
Fig. 10 (case 10).—Left cord almost motionless; in subglottic region, just below the left cord, a red swelling.

Case 12.—M. R., a man, aged 59, had been having some difficulty in swallowing solids for about six months and had lost some weight. Mirror laryngoscopy at this time was negative, and no abnormality was found on palpation of the neck, except tenderness on pressure over the trachea just below the cricoid cartilage. Fluoroscopic study showed lodgment of the opaque capsule just below the level of the suprasternal notch, and the capsule was not dislodged until after many swallows of water. The thick paste was moderately obstructed in passing the suprasternal notch, but the liquid mixture passed readily. There was slight dilatation of the esophagus above the obstruction. There was also distinct retrotracheal swelling, and a moderate compression stenosis of the trachea at the level of the suprasternal notch. There was an "eccentric constricted channeling of the esophagus" for a distance of 6 cm. in its upper third. On esophagoscopy a bleeding mass was found obstructing the lumen of the esophagus just below the cricopharyngeal pinchcock. A specimen of tissue was removed, and the pathologist confirmed the diagnosis of squamous carcinoma.

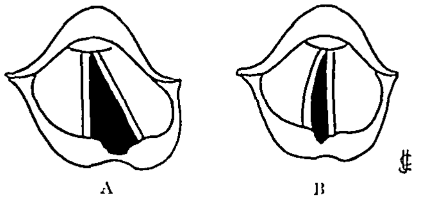

Fig. 11 (case 11).—Glottis on full inspiration: *A*, posticus (abductor) paralysis of right vocal cord; *B*, right cord cadaveric, with posticus (abductor) paralysis of left cord.

The patient was discharged, high voltage roentgen therapy being advised. The patient did not have this carried out, but two months later he returned with a left recurrent paralysis, and increased difficulty in swallowing.

Case 13.—J. C., a man, aged 61, complained chiefly of dysphagia of about one year's duration, but he complained also of strangling attacks and difficulties of speech. The family physician had suggested the diagnoses of small aneurysm of the descending aorta, thyroid neoplasm, or mediastinal growth. Mirror laryngoscopy showed marked impairment of motion of the left cord, which seemed slightly crescentic. The right cord was also somewhat sluggish, and its movements seemed incoordinate. Roentgenography showed slight dilatation of the aortic arch. A blurring of the ventricles of the larynx was noted of such character as would be explained by a paralysis of the vocal cords. The blood Wassermann reaction was negative. Neurologic examination by Dr. Spiller led to a diagnosis of progressive spinal muscular atrophy developing into bulbar palsy. Esophagoscopy showed no organic lesion in the esophagus and no esophageal compression.

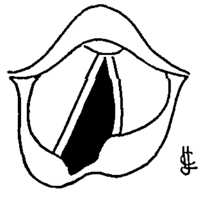

Fig. 12.—Left recurrent paralysis (glottis shown on full inspiration).

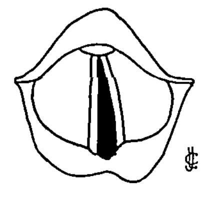

Fig. 13 (case 13). — Impairment of motion of left cord; right cord sluggish, its movements seeming incoordinate.

CONCLUSION

This series of cases demonstrates the value of fluoroscopic and roentgenographic study of the neck in the diagnosis of laryngeal lesions. The roentgenologist can now detect inflammatory and neoplastic processes in their incipience, when they are causing only the mildest symptoms.

235 South Fifteenth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. PANCOAST AND JACKSON

Dr. Samuel Iglauer, Cincinnati: I think Drs. Pancoast and Jackson are to be congratulated on the thoroughness with which they investigated the subject, and especially on the fluoroscopic studies. Dr. Pancoast has brought out not only the anatomy of some of the lesions but also the physiology of these parts. The question of ossification in the larynx is important because the roentgenologist who is not familiar with the subject will often state that there is a foreign body behind the larynx when what is really shown is ossification of the cartilage. According to the studies of Scheier, ossification follows a definite course. Ossification first appears in the thyroid cartilage at the age of 18; later the cricoid begins to ossify; the tracheal cartilages are the last to ossify. A study of ossification is also important if one is going to perform laryngofissure, since one knows in advance whether one is going to cut through bone. The x-rays are of value in studying laryngotracheal stenosis, usually revealing a narrowed air column in the obstructed portion of the larynx or upper part of the trachea. The narrowing of the lumen can sometimes be delineated to better advantage by the injection of iodized oil into the larynx. When the patient wears a tracheal cannula, the stenosis may also be demonstrated by pulling a rubber sausage containing an opaque medium into the larynx above the cannula. The x-rays are of value also in showing the position of intubation tubes or permanent rubber dilators introduced for treatment and also in the instruction of students in the use of intralaryngeal instrumentation. In a case of congenital laryngocele I was able to demonstrate the distended air sac in the neck when the patient made forced expiratory efforts. Swellings encroaching on the lumen of the larynx or trachea, such as retropharyngeal abscess, are readily demonstrated by the x-rays and are of considerable importance in the diagnosis and control of treatment of these conditions. A sign of great value in perforation of the esophagus or pharynx is the presence of clear spaces in the swollen area. These air bubbles can often be demonstrated by the x-rays without the presence of any palpable emphysematous crackling at the root of the neck. While it may be impossible to diagnosticate by x-rays a particular disease such as tuberculosis of the larynx, nevertheless the x-ray film will usually show more involvement of the underlying perichondrium and cartilage than one would expect from the ordinary laryngeal examination.

Dr. William V. Mullin, Cleveland: The cases that are most troublesome to me are those in which I am unable to arrive at a correct diagnosis at the first examination. Many patients come from a distance and sometimes fail to return for subsequent study, so that a prompt diagnosis is urgently needed. At one time I believed that laryngeal tuberculosis could be diagnosed by the x-rays. Dr. Pancoast says that it is not possible to demonstrate this condition roentgenographically, and doubtless he is correct. In an army hospital for tuberculosis we had roentgenograms made in several hundred cases. Our idea at that time was that tuberculous infiltration starts at the bottom of the laryngeal tissue next to the cartilage and travels to the surface, and we believed we could see these densities and infiltrations coming to the surface. We were not able, however, to confirm our observations by postmortem or pathologic examinations. Dr. Pancoast says that chondritis cannot be demonstrated by x-rays, which explains the results in a recent case. A boy, aged 16 years, was very hoarse and had a discharging fistula in front of the thyroid cartilage. Two months previously, two teeth on the left side had been extracted under local anesthesia. After this, sore throat developed and then apparently a peritonsillar abscess on the left. The abscess was incised, and a swelling appeared in the neck in front of the thyroid cartilage. This also was incised, to be followed by a lung abscess which evidently evacuated spontaneously. At the time I saw the patient the appearance of his larynx was almost that of tuberculosis, both false cords being infiltrated to such an extent that they made an approximation before the true cords, producing the hoarseness. Examinations by smear and guinea-pig inoculation were negative for tuberculosis. Complete roentgen study of the larynx showed nothing; yet at operation complete necrosis of the thyroid cartilage on the right side was found, necessitating the removal of almost the entire right wing. It would seem that such a condition should be evident roentgenographically, but it was not demonstrable in this case.

Dr. Eugene P. Pendergrass, Philadelphia: The fluoroscopic and roentgenographic study of the neck and upper respiratory tract is one of the most valuable supplementary examinations the laryngologists, bronchoscopists and esophagoscopists have at their disposal. The roentgen examination offers a permanent record of the location and extent of the disease or growth, just as the microscopic slide becomes a permanent record of the pathologic process. I do not believe that it is possible for one to say a given case is tuberculosis because of increased calcification of the cartilage, or syphilis because of an associated enchondritis. I do feel, however, that the variation from the normal can be discovered and recorded. The roentgen examination is only a part of the study of the larynx, and it is only after correlation of the laryngoscopic observations, the various laboratory reports, and the roentgen observations that the complete study has been made. The roentgen examination is a most satisfactory method for recording the progress of the treatment of laryngeal and tracheal stenosis. One can see the exact position of any apparatus that is used. Encroachment on the lumen of the larynx and displacement of the trachea from outside pressure are distinctly visible. Such information as this should be of diagnostic importance in assisting one to plan any surgical procedure. The roentgen examination of the neck and upper respiratory tract should be as valuable to the rhinologist and laryngologist as is the sinus examination. Excellent roentgenograms demonstrating soft tissue detail are desirable, but a careful fluoroscopic examination with well accommodated eyes, the observations detailed by Dr. Pancoast being considered, is essential.

Dr. Gabriel Tucker, Philadelphia: It has been my good fortune to be associated with Dr. Pancoast in this work and I consider the roentgenologic aid that he gives invaluable in the diagnosis and treatment of these cases. In laryngeal disease every obtainable aid is necessary in order to make a correct differential diagnosis, for in disease of the larynx early correct diagnosis may mean saving the patient's larynx and, in many instances, his life as well. Mirror examination alone will seldom give sufficient information for a correct opinion. A routine study should be made that includes a careful history, a complete general examination by a competent internist, serologic studies to exclude syphilis, roentgen examination of the neck and chest, and sputum examinations to exclude tuberculosis, as well as repeated mirror examinations of the larynx. Direct examination with the removal of tissue for biopsy is the final step.

Dr. Henry K. Pancoast, Philadelphia: Dr. Iglauer has called attention to the word "cooperation," which is the foundation of the work I have just shown. Without cooperation, roentgenology can create little that is new. The institutions in our part of the country are largely judged by the ability of their roentgenologic departments and the ability of the roentgenologist is largely a measure of the spirit of cooperation in the staff of an institution. Cooperation has been the greatest feature of the work with Dr. Jackson, and more recently with Dr. Tucker, and without that cooperation I would have been absolutely unable to show what I have today. I have had to limit my remarks absolutely to the larynx because if I discussed the entire upper respiratory tract it would take a long time to talk about all the conditions that could be diagnosed. There was an excellent excuse for offering the observations from the roentgenologic standpoint. These cases did not all come from the bronchoscopist. There are many conditions, not only in the larynx but in other portions of the upper respiratory tract, that are never suspected by the clinician, and many of these cases came from clinicians. There is no necessity for any controversy as to whether syphilis and tuberculosis can be diagnosed or differentiated by roentgenologic means. These conditions cannot always be diagnosed or differentiated by direct visualization. The frequency with which cancer exists in conjunction with syphilis is well known. It certainly exists in the mouth and I imagine it does in the larynx, and a biopsy is absolutely necessary. Dr. Tucker has called attention to a case in which tuberculosis and carcinoma exists in the same case, and strange to say microscopically the lesions existed side by side. I think, however, that pulmonary tuberculosis was found in this case at the examination, but biopsy was the final test.

INTERNAL DRAINAGE

ITS APPLICATION IN PULMONARY SUPPURATION *

WILLIAM B. FAULKNER, Jr., M.D.
SAN FRANCISCO

In the study of pulmonary suppuration, intrabronchial drainage [1] has not had the attention that it deserves. This drainage is of two types: "external" and "internal." By external drainage I mean the ability of a bronchus to empty itself by cough and expectoration. Internal drainage, on the other hand, is the inability of a bronchus to empty itself adequately, the pus spilling about from place to place within the lung. This spilling, or internal drainage, is a definite entity in pulmonary suppurations, and an understanding of it is important in the diagnosis and treatment of these conditions.

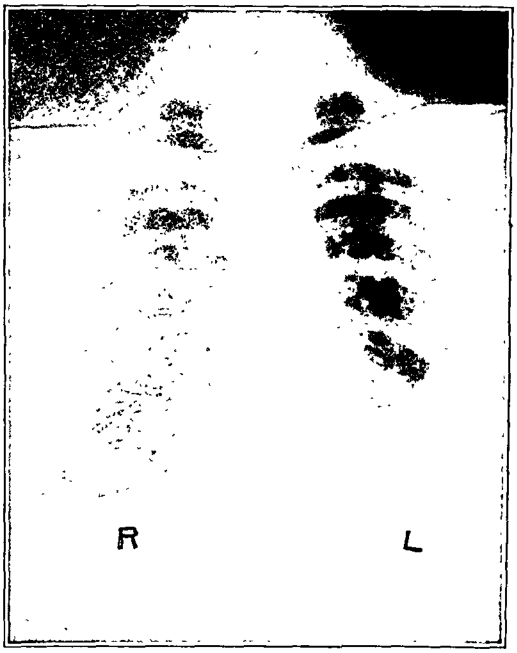

Fig. 1.—Iodized oil injection, illustrating the principle of internal drainage. The oil was introduced through the mouth without any type of anesthesia; consequently the cough reflex was not abolished. The patient was in the erect position during the injection. The oil flowed downward and the bronchi of the right lower lobe were visualized. There is no oil in the remaining portions of either lung. (Iodized oil injection done by Dr. Maurice Lubin.)

The occurrence of internal drainage has been substantiated by iodized oil studies and bronchoscopic examinations. The injection of oil has permitted a study of the accessibility of either lung to intrabronchial secretions from the opposite side and has shown that internal drainage can occur even in the unanesthetized patient in whom the cough reflex has not been abolished. The influence of posture on this drainage is demonstrated in figures 1, 2 and 3.

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* From the Thoracic Surgical Clinic (J. J. and Nettie Mack Foundation), Department of Surgery, University of California Medical School.

* Read before the Section on Practice of Medicine at the Eighty First Annual Session of the American Medical Association, Detroit, June 27, 1930

* Owing to lack of space, this article is abbreviated in The Journal by the omission of several illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

[1] Brunn, Harold, and Faulkner, W. B., Jr. Intrabronchial Drainage, Its Importance in the Diagnosis and Treatment of Pulmonary Suppurations, Surg. Gynec. Obst. **51**: 115-124 (July) 1930

Bronchoscopic examinations under light ether anesthesia on patients with a left-sided pulmonary abscess have shown pus spilling across from the diseased side into the bronchi of the opposite lung (figs. 4 and 5).

Physical examinations, plain roentgenograms, operative studies, and autopsy observations further support the theory of internal drainage. I have recently seen a patient with a right-sided basal pulmonary abscess in whom practically all the abnormal physical observations were elicited on the left side. On bronchoscopic examination the main bronchi of the left lung were filled with pus. The conception that this intrabronchial secretion must have spilled over from the diseased right side into the left lung while the patient was lying on the left side is supported by the fact that almost all the abnormal physical observations disappeared following bronchoscopic treatment and removal of the pus from the left major bronchi.

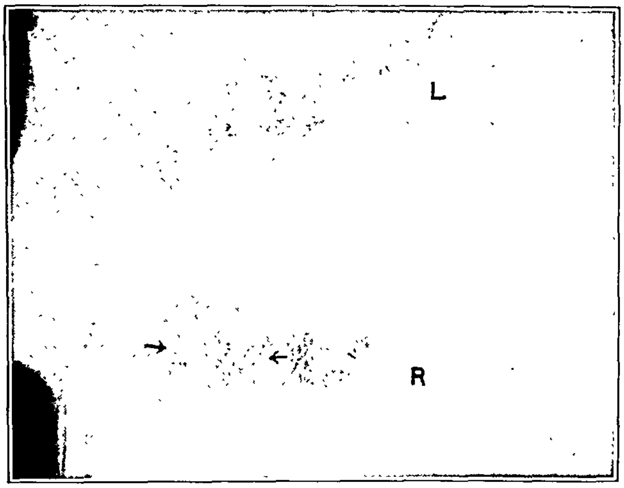

Fig. 2.—Iodized oil injection (internal drainage): Same patient as in figure 1. No further oil was introduced following the taking of figure 1, but the patient had been lying on her right side for fifteen minutes and the iodized oil had spilled from its original position in the lower lobe so as to visualize the right upper lobe bronchi. Note the absence of oil in the left lung. The patient was next turned on her left side. See figure 3.

A second patient, who had been expectorating a pint of pus daily, complained of pain over the right base. Physical examination showed impaired resonance, along with diminished breath sounds and voice sounds, as well as râles over the right lower lobe. The plain roentgenogram showed increased markings at the right base and was interpreted as a possible basal bronchiectasis. The right upper lobe seemed uninvolved on both physical examination and the plain roentgen plates. Iodized oil injection was suggested, and this demonstrated normal bronchi at the base but a very definite enlargement of the bronchi of the upper lobe that had previously appeared normal. Bronchoscopic examination and exploratory thoracotomy confirmed the presence of an upper lobe bronchiectasis. Therefore, the abnormal lower lobe physical observations and x-ray shadows in this case must have resulted from the collections of pus which had spilled by internal drainage from the diseased upper lobe into the lower lobe bronchi (fig. 6).

A young woman who was operated on by means of cautery pneumonectomy for the relief of a right-sided basal pulmonary abscess had an uneventful course for the first few days after operation. She then had a slight hemorrhage from the wound, but this seemed to have been controlled by packing. A few hours later, however, a peculiar air hunger developed and the patient died suddenly. Clinically a pulmonary or cerebral embolus seemed to account for the death. Autopsy disclosed a marble-sized clot of blood in the left main bronchus even though there was no ulceration or abrasion on the left side. Death was, therefore, due to the aspiration, or spilling over, of this clot from the operated right side into the left main bronchus. If I had appreciated the problems of internal drainage at that time, the patient might have been saved by an immediate bronchoscopic treatment and removal of the clot.

In other instances of one-sided pulmonary abscess associated with large amounts of expectoration, similar sudden deaths have occurred shortly after a first-stage pulmonary abscess operation. Postmortem examination in each case showed the bronchi of both lungs completely filled with pus even though the abscess was situated on only one side. This pus must have spilled over from the diseased side into the good lung during and immediately following the operation. Prompt bronchoscopic treatment and removal of the pus would have cleared the passageway and probably would have saved these patients (figs. 7 and 8).

THE MECHANISM OF INTERNAL DRAINAGE

The spilling of intrabronchial secretion is dependent on the following factors: the patency of the bronchial opening; the amount and viscosity of the intrabronchial secretions; the anatomic position of the various bronchial openings; the direction of the bronchial trunks; the site of the primary lung lesion, and the posture of the patient.

If the bronchus is open and the pus is sufficiently thin and in large quantities, the material will spill from the higher to the dependent areas. No spilling will take place if the bronchus is occluded by edema, granulations or thick inspissated pus. Spilling will also be limited in amount when the pus is unusually viscid or in small quantities (fig. 9).

The high position of the right main bronchus, directly opposite the bifurcation, makes this a common site for the collection of secretion when the patient is lying flat on his right side (fig. 10). In this right-sided position, material will spill not only from the right base but also from the left lower lobe into the right upper lobe (fig. 11). The close proximity of the right middle and lower lobe bronchial openings facilitates drainage from one to the other and leaves both liable to spilling from a diseased upper lobe bronchus. This right upper lobe opening is situated about an inch and a half above the middle and lower lobe openings (fig. 12).

Since the middle lobe bronchus runs anteriorly while the lower passes posteriorly, secretions flow from the middle into the lower lobe when the patient is flat on his back, and vice versa when a flat position on the abdomen is assumed (fig. 13). This flow of secretions can be studied by repeated physical examinations. Abnormal physical conditions appear at the areas to which pus spills, and these conditions migrate with changes in posture, as has already been noted in connection with the iodized oil roentgenograms. The areas at which these abnormal signs occur are identical with the sites to which the iodized oil flows, and the physical signs are the same irrespective of whether the intrabronchial secretion is pus or iodized oil.

In the erect position, secretion in the right or left upper lobe migrates to the bases, but material will flow from the right upper across into the left main bronchus when the left side is lowermost (figs. 7 and 8). These observations have been confirmed on numerous occasions. Bronchoscopically, pus has been found in the left lung even when the primary disease was on the right side.

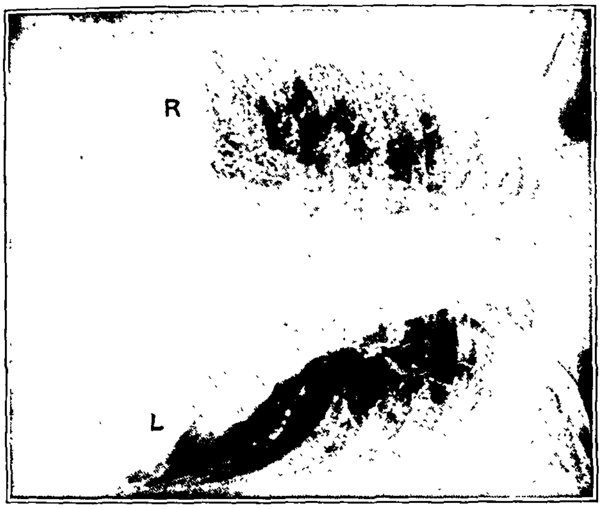

Fig. 3.—Iodized oil injection (internal drainage): Same patient as in figures 1 and 2. No further oil was introduced after figure 1 was taken. The change in the position of the oil resulted from "internal drainage" and was influenced by the posture of the patient. The iodized oil began to spill across into the left lung after the patient lay on her left side. Figures 1, 2 and 3 demonstrate the possibilities for the internal drainage of intrabronchial secretion in the unanesthetized patient in whom the cough reflex has not been abolished. The oil flows to predetermined areas.

By keeping these factors in mind, the possibilities of spilling will be appreciated and postures can be employed to empty the bronchi, or at least to prevent spilling into the opposite lung.

PRACTICAL APPLICATION OF INTERNAL DRAINAGE

Since abnormal physical observations and roentgen shadows appear in the areas to which the pus spills, a diagnosis is to be made only after repeated examinations in various postures. As has been demonstrated, abnormal physical conditions may appear at regions that are quite distant from the source of the trouble, and possibly no clue will be found on either physical examination or a study of the roentgenograms as to the site of the primary lesion. Even bronchoscopic examination may be misleading, because the constant spilling of pus from one area to another will set up transient secondary inflammatory changes at the regions to which the spilling takes place. These secondary changes must not be mistaken for the main source of the trouble. Because of the difficulty of diagnosis, all the available aids should be employed before making a decision as to the site of the abscess.

In view of the dangers of internal drainage, a careful choice of anesthetic is demanded so that the patient will awaken shortly after operation before the pus has spilled from the bad side and completely drowned the bronchi of the opposite lung. Twilight anesthesia and other prolonged anesthetic agents are contraindicated. Nitrous oxide and oxygen seem most desirable, since the patient awakens shortly after the operation.

If there is a history of large amounts of expectoration, a bronchoscopic examination must be done immediately before the chest operation so as to empty the bronchi and to prevent spilling of pus from one lung to the other. The bronchoscopic treatment should be repeated at the end of the operation if necessary. These bronchoscopic treatments should not be limited to the surgical cases but may be employed to advantage in conjunction with other conservative methods so as to prevent the spilling of pus.

When thoracic surgical procedures are being considered, special attention should be given to the position of the patient, not only on the operating table but also after his return to the ward. This attention to detail will lessen the spilling of pus to obstruct new areas, and it will minimize the possibilities of sudden or latent secondary pulmonary complications. In cauterizing the lung, hemostasis should be as nearly perfect as possible. Otherwise, blood will spill from the operated area into new regions, obstruct the normal air flow, and possibly lead to serious consequences.

I believe that many of the deaths ascribed to postoperative shock, cardiac failure, acute pulmonary edema, pulmonary embolism and cerebral embolism are really the consequences of internal drainage.

SUMMARY

The term "internal drainage" is used to designate the spilling of pus from a diseased bronchus to neighboring bronchi of either lung.

Internal drainage is a definite entity, and an understanding of it is important in both the diagnosis and treatment of pulmonary suppurations as well as in the prevention of postoperative pulmonary complications.

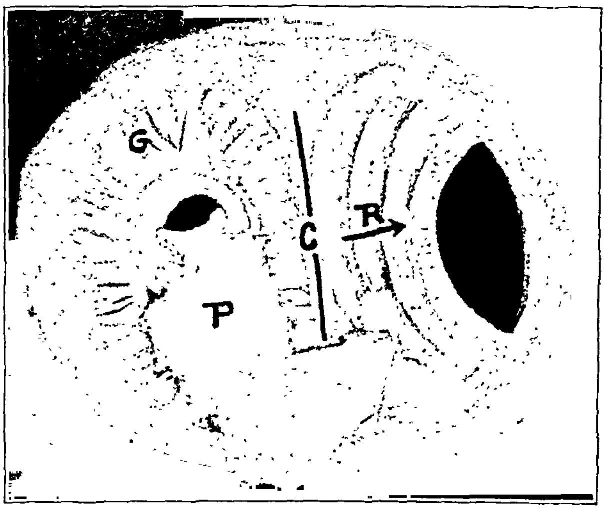

Fig. 4.—Bronchoscopic view at the region of the carina (bifurcation of the trachea) in a patient with a left-sided pulmonary abscess (diagrammatic sketch): The left main bronchus is partially occluded by a rim of edematous granulation tissue (*G*). Note the pus (*P*) spilling from the left main bronchus across the carina (*C*) into the right main bronchus (*R*). This spilling has been referred to as "internal drainage," and was observed in this patient during the bronchoscopic examination under a light ether anesthesia. (Compare with the bronchoscopic view of a normal patient, figure 5.)

Intrabronchial injections of iodized oil have permitted a study of internal drainage and of the factors on which it depends.

Pus within a bronchus may spill to predetermined areas, depending on the posture of the patient, the site of the primary lung lesion and the patency of the bronchus. This drainage is especially marked when the pus is of low viscosity and of great quantity.

The application of the principles of internal drainage has enabled me to localize more accurately the site of pulmonary abscesses, to lessen the number of patients requiring operation, to lower the operative risk, and to increase the percentage of cures.

University of California Hospital, Third and Parnassus avenues.

ABSTRACT OF DISCUSSION

Dr. John Alexander, Ann Arbor, Mich.: Dr. Faulkner has clearly shown the strong influence of posture on migration of secretions within the bronchial tree. Coughing also has a powerful influence. Fluoroscopic observation of iodized oil within the bronchi during acts of coughing demonstrates how freely the oil is moved from one portion of a lung to another or from one lung to the opposite lung, as well as toward the mouth. It may be assumed that the longer infected secretions remain in contact with uninfected portions of lung, the greater will be the chance of infection. In surgical practice these facts may be used to great advantage. Immediately before any operation, every patient who has sputum should evacuate as much as possible of his sputum by voluntary coughing and perhaps by postural drainage. Unless there is a contraindication, patients with sputum who are given a general anesthetic should be operated on in a Trendelenburg position of about 15 degrees and in some patients this position is desirable after operation. Atropine should not be given as a routine preoperative medicament because it makes the bronchial secretions tenacious and therefore more liable to occlude the bronchi and favor pulmonary infection distal to the occlusion. Neither before nor after operation should morphine be given in large enough doses to dull the cough reflex so much that there will be insufficient coughing to raise what secretions are present. Yet enough morphine should be given to allay pain to a degree that the patient is willing to cough. Abdominal or thoracic incisions should be so supported by binders and the nurse's hands that coughing is made easier. Voluntary coughing, inhalations of 5 per cent carbon dioxide in oxygen, postural drainage and bronchoscopic aspiration are useful methods under certain circumstances for evacuation of bronchial secretions after operation.

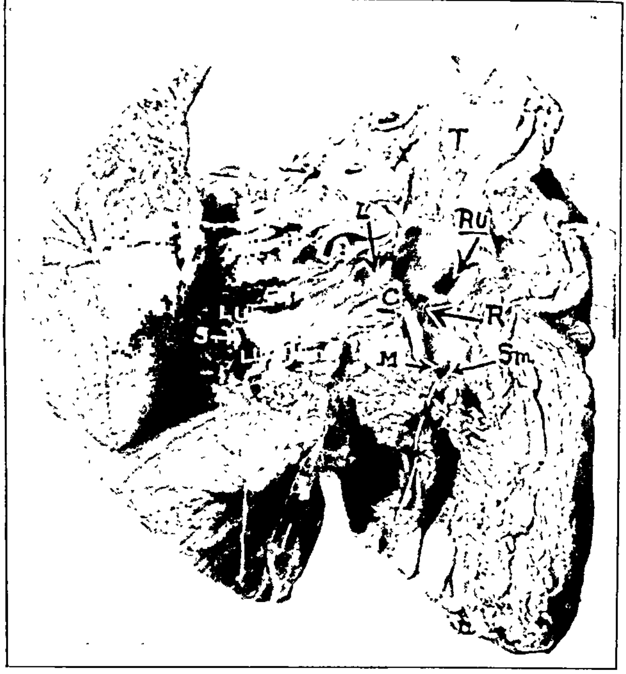

Fig. 10.—Specimen illustrating the anatomy of the tracheobronchial tree and its similarity to a system of open pipes. Free communication between the various bronchial trunks facilitates the spilling of intrabronchial secretions from one trunk to another. *T*, trachea; *C*, carina—bifurcation of the trachea; *L*, left main bronchus; *R*, right main bronchus; *RU*, right upper lobe bronchus; this opening is high up and almost directly across from the carina (*C*); *Sm*, septum between the openings of the middle and right lower lobe bronchi; *S*, septum between the left upper (*LU*) and the left lower (*LL*) lobe bronchial openings; these openings are close together, about 2 inches down from the carina.

Dr. W. P. Lucas, San Francisco: The internal drainage of pus, secretions and blood from one lobe to another occurs by the connecting system of bronchi, a sort of pump system which is open at times and closed at others, which makes diagnosis very difficult. The addition of frequent bronchoscopic examinations is therefore important not only for diagnosis but also from the standpoint of treatment. The need of iodized oil in connection with such diagnosis does not need to be emphasized to those who have used it. When the bronchoscope is used it must be used by one who is familiar with its use. I was myself surprised at the ease with which children can be made to take the bronchoscope on repeated occasions without coughing, without any disturbance, without any fear, when it is done by some one who knows how to do it.

Dr. Louis H. Clerf, Philadelphia: In the Lumleian lectures, Dr. Thomas McCrae pointed out that, in cases of bronchial foreign body, physical signs were commonly elicited over the opposite lung; they were practically always auscultatory signs. In cases of localized pulmonary abscess, the roentgenologist will often report that there is a definite increase in the bronchial shadows over the opposite normal lung; when the abscess is cured, these shadows have lessened in density. By bronchoscopy one usually observes evidences of mucosal infection of the bronchi of the normal lung. Surgeons frequently ask us to carry out a course of bronchoscopic treatments in cases of abscess of the lung or bronchiectasis before external operation is resorted to because they believe that definite improvement results, particularly in the normal lung tissue and bronchi. All of this is evidence to support the belief that secretion from one portion of the lung may be and is distributed to other portions of the tracheobronchial tree. Iodized oil should always be used as a diagnostic measure before external operation is contemplated, particularly in bronchiectasis.

Dr. William B. Faulkner, Jr., San Francisco: My experience has been similar to Dr. Alexander's, in that this internal drainage not only accounts for the physical manifestations but may lead to serious consequences, such as the development of a suppurative metastatic process in the opposite lung. Throughout this entire work it has struck me that posture has played a much more important part than cough, but I am unable to speak authoritatively on that point as yet, as we are still studying the matter. Dr. Lucas has mentioned the necessity of bronchoscopy in the treatment of these patients, and I may say that in the patients with lung abscesses whom we have seen, even though we have been thoroughly interested in the operative side and desirous of doing thoracic surgical work, we have been able to cure six patients in succession by the employment of bronchoscopy and other conservative measures—a small series, but it warrants attention. In our foreign body cases we have observed the same signs to which Dr. Clerf calls attention; that is, the physical observations will often be on the side of the chest opposite that in which the foreign body is situated.

The Danger of Sterilization.—One of the greatest dangers in the use of sterilization is that overzealous persons who have not thought through the subject will look on it as a cure-all, and apply it to all sorts of ends for which it is not adapted. It is only one of many measures that the state can and must use to protect itself from racial deterioration. Ordinarily it is merely an adjunct to supervision of the defective or diseased. Its object is to protect the public, but it must protect all of the interests of the public, not merely one of them.—Gosney and Popenoe: Sterilization for Human Betterment, New York, Macmillan Company, 1930.

NONMALIGNANT NODULES OF THE BREAST THE RESULT OF PROLAPSE *

LILIAN K. P. FARRAR, M.D.
NEW YORK

The first mastectomy recorded for prolapsed hypertrophied breast was probably that done in 1669 by Durston, who says that "when opened nothing was found but prodigious bigness (64 lbs.)." In 1857 Velpeau gave a graphic description of the operation he had performed for virginal hypertrophy of the breast. Michel and Poussin were the first, in 1897, to devise a plastic operation for prolapsed hypertrophied breasts. The first operation in Germany for a similar condition was done in 1908 by Dehne. In 1910 the surgical congress in Geneva held a discussion on hypertrophy of the prolapsed breast, and the operation for its relief.

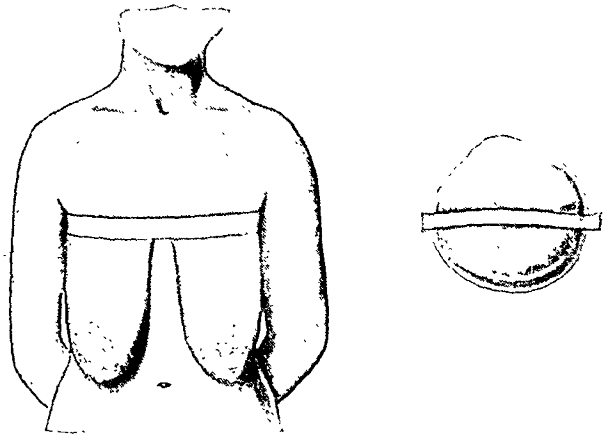

Fig. 1.—Prolapsed atrophic breasts.

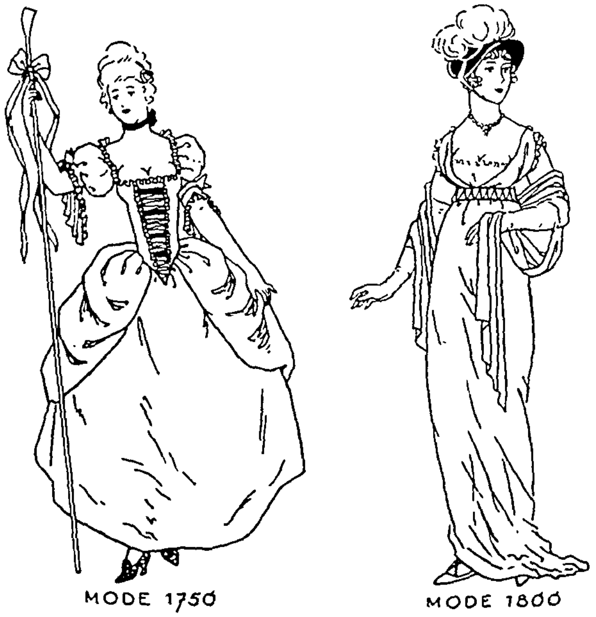

Fig. 2.—Mode 1750, the "Watteau"; mode 1800, the "Empire."

Little space has been given in the medical literature of this country to virginal hypertrophied breasts, but rather frequent mention is made of this condition and of operation in the surgical journals of Europe, especially in Germany. It was not, however, until 1923 that it began to be recognized that a new condition had arisen, and Kraske seems to have been the first to describe a plastic operation for "virginal atrophic prolapsed breasts." The prolapse was attributed correctly to the loss of fat in the breast tissues, and considered to have been caused by malnutrition. This may well be and no doubt did follow as a result of food conditions during the war. But this cannot be considered to be the cause in our own country, where prolapse of the atrophic breasts is now occurring with alarming frequency.

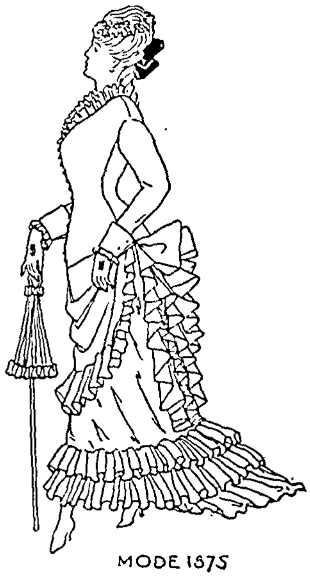

Fig. 3.—Mode 1875, the "Princess."

Fig. 4.—"The gay nineties."

It is I think the first time, certainly in centuries, that fashion has decreed an absence of breast, in the civilized races. It is true that certain of the savage tribes, notably the Hottentots, use many devices to produce the elongated prolapsed breast which is presumably a mark of beauty in that race. But certainly never in

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* This article is shortened in THE JOURNAL by the omission of the bibliography, which will appear in the Transactions of the Section and in the author's reprints.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

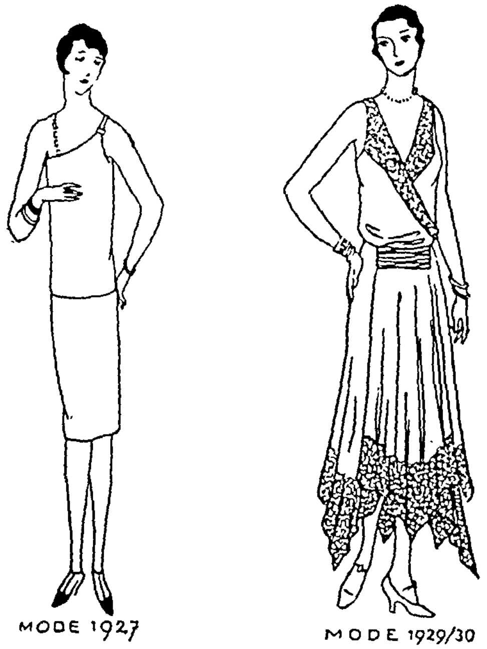

Fig. 5.—Mode 1927, the "tailor made girl"; mode 1929-1930, the "epitome of fashion."

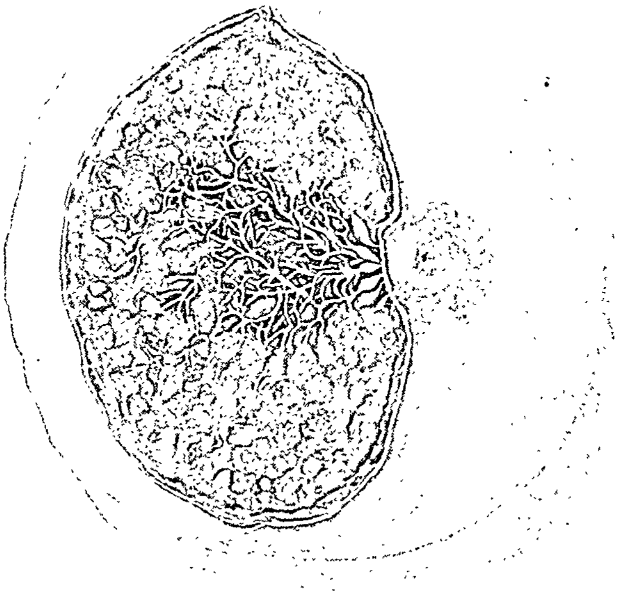

Fig. 6.—Normal breast with fat removed, showing the ampullae of the milk ducts.

this country until now have the breasts been actually forced down by the mode of dress. If one studies old paintings or portraits one will see that, while fashion has its vagaries in dress, the upper part of the dress, whether it be the "Watteau," the "Empire" (fig. 2), the "straight front" or the "tailor made" (fig. 3), has always given support to the breast tissues. As the bicycle, tennis and golf became popular and women took more active part in outdoor sports there came the demand for a dress that would allow more freedom for muscular action (fig. 4), and a much more suitable style of sport dress was evolved. Dame Fashion, unfortunately, soon decreed a dress for sport copied directly from the wardrobe of the young girls' brother. The "boyish form brassière" with its tight nonelastic constriction of the chest was the logical necessity after taking the boys' clothes. The practice of covering the breasts with, adhesive plaster to allow the wearing of a boyish swimming suit, or "Antibe shirt," hastened the changes in form now taking place. The fashion in sport clothes soon extended to evening dress (fig. 5) until the flat chest became *de rigeur* for all the gowns of the young girl. As the breast posteriorly is only loosely attached by areolar tissue to the fascia covering the pectoralis muscle, and attached anteriorly by the fascia to the skin over the breast and at the areola surrounding the nipple (fig. 7), the pressure brought on the soft yielding tissues of the breast soon causes the fat to atrophy and the breast to prolapse. It is not unusual now to see the breasts forced to the waist line, or even to the umbilicus. The upper part of the breast, when prolapse has taken place, is only a fold of flabby skin and the dependent portion consists of glandular tissue that seems to be made up of separate nodules, because the fat is entirely absorbed and one feels only the lobules of the breast. These nodules are frequently mistaken for new growths (fig. 8) and the breast removed in part or entirely under the belief that they are malignant. A distinguished surgeon in this country said that he had operated in a hundred cases before he found that they were not cancerous and is now leaving

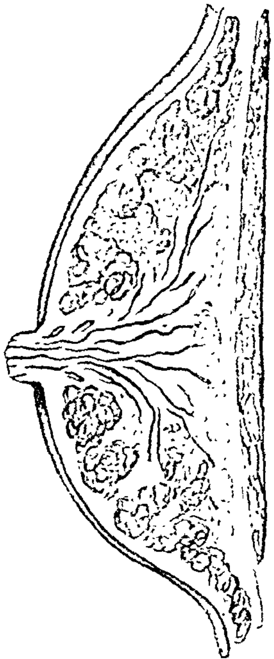

Fig. 7.—Side view of normal breast showing milk ducts and the loose attachment to the underlying fascia.

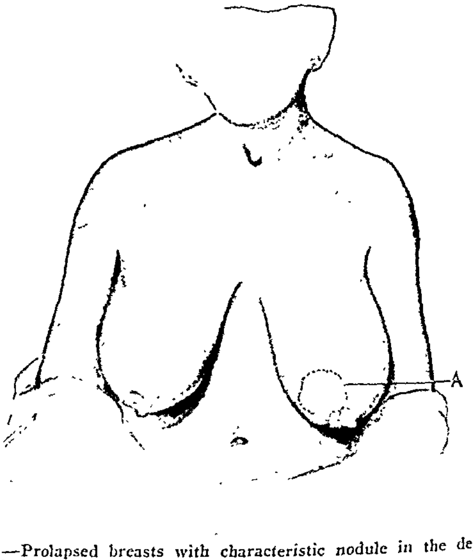

Fig. 8.—Prolapsed breasts with characteristic nodule in the dependent portion of the breast.

them alone. But can one leave them alone? Increasing prolapse may soon mean a breast that will have to be fastened at the waist line (fig. 9), as the Hottentots do, or the serious risk of mammary cancer developing from continued breast stasis.

On the other hand, the type of plastic operation now being advocated is a formidable operation necessitating lifting the nipple (fig. 10 *A*) after having made a circular incision around the areolar tissues, and thereby cutting the suspensory ligaments of Cooper and probably cutting the ampulla of the milk ducts which lie directly under the nipple. The removal of the dependent portion of the breasts takes away the glandular secreting tissue (fig. 10 *B*). If the argument is made that sufficient tissue is left for nursing, the fact must be recognized that the ducts have been, at least in part, destroyed (fig. 10 *C*) with consequent inability to nurse from portions of the breast because of loss of ducts; and then arises the danger of "caked" breast and abscess in the nursing mother. Last, but certainly of great importance, is the mutilation of a young girl. The ugly scars, the shock and mortification are not easily to be borne by the young. Fortunately in the young, and the majority of these patients are under 25, the tissues will respond to a properly applied breast support (fig. 11). This should be made of a light elastic webbing and fastened by elastic lacings in the back with two firm straps over the shoulders that may be buckled in front, or in the back if desired, especially when evening dress is worn. The results in approximately fifty cases, which have either been followed personally or reported by physicians who have referred their patients in consultation, have been so satisfactory that I believe I can say it is the only way really to restore the atrophic prolapsed breasts occurring in young girls.

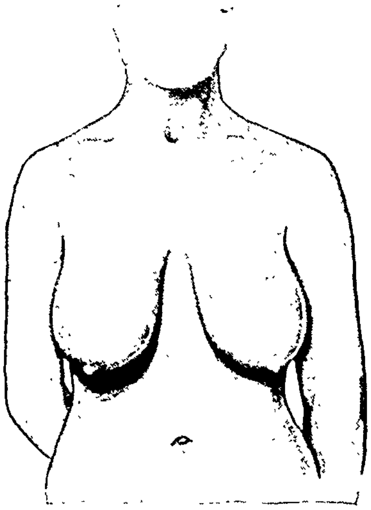

Fig. 9.—Same patient after wearing supporting brassière two months: total disappearance of the nodule seen in figure 8.

CONCLUSIONS

1. Prolapse of the virginal atrophic breast is occurring with alarming frequency in this country owing to the present fashion in dress.

2. There is danger of permanent prolapse of such a breast, and perhaps danger of cancer developing from prolonged stasis of breast tissue.

3. Plastic operation for prolapsed atrophic breasts is an unnecessary mutilation of a young girl.

4. Plastic operations on prolapsed atrophic breasts will deprive nursing mothers of breast tissue and milk ducts with too little tissue left for nursing and possibly "caked" breasts and abscesses of the breasts as a result.

5. The change of dress with proper uplifting support of the breast will cure the condition if treatment is begun early.

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ABSTRACT OF DISCUSSION

DR. GEORGE GRAY WARD, New York: Dr. Farrar has called to our attention at the Woman's Hospital for a number of years past the frequency with which we come across nodules, small in type, that occur in the breasts of comparatively young women and which cause us some doubt as to whether we should operate on them or not; in other words, whether we should make a biopsy or not to prove whether they are malignant. This happens so frequently, and so many times we find that the nodules are not malignant, that we have paid attention to what she has said about the fact that many of these cases are brought about through the method of dress today, pressure on the breasts, and we feel that in those cases in young women this should be given consideration, and the case should be studied before we hastily remove a supposed nodule. The proper support of these breasts, proper instruction, insisting on lack of all constriction, which is quite a common thing among many of these girls who desire to have a boyish figure, has resulted in the disappearance of the lumps in a number of cases. Recently I had my attention called to the

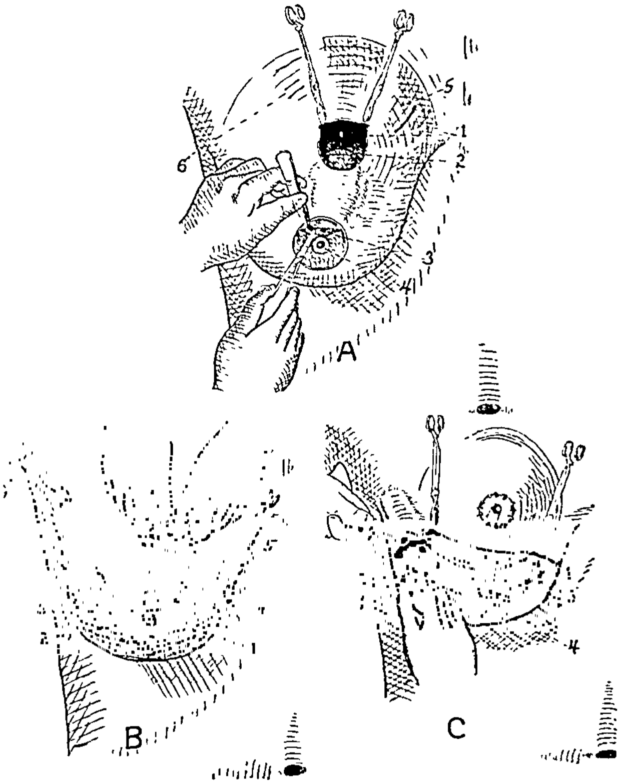

Fig. 10.—The mutilating type of operation that has been frequently recommended for atrophic prolapsed breasts: *A*, the opening for the nipple when excised; *B*, nipple being drawn upward into the artificial opening; *C*, excision of glandular breast tissue with consequent injury to the milk ducts.

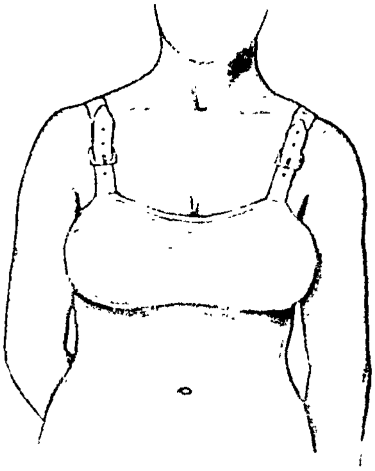

Fig. 11.—Brassiere to support and restore the prolapsed atrophic breasts. The shoulder straps are adjustable and the brassiere is laced in the back.

operation for lifting breasts that were markedly prolapsed, and also in cases of extensive hypertrophy, by a surgeon in New York who showed a number of photographs before and after, and the technic he used, and at his request I allowed him to give a demonstration at the Woman's Hospital of this operation on a case in a young woman who had pendulous breasts. The operation is certainly a most formidable one. It took between two and three hours to do, and it undoubtedly, as I saw it, means the sacrifice of gland-bearing tissue which may be of value to that woman should she become pregnant later. I believe that the operation is not justifiable in young women and should be used only in these extreme cases of excessive hypertrophy and deformity, and the dangers of operation should be emphasized so that the patient has her choice and knows what she is doing.

ROENTGEN EXAMINATION OF THE PARANASAL SINUSES AND MASTOIDS *

AMÉDÉE GRANGER, M.D.
NEW ORLEANS

During the meeting of this section at San Francisco in 1923 it was my privilege to describe [1] in detail two positions for making roentgenograms of the paranasal sinuses, more especially the sphenoids and ethmoids. I adopted these after painstaking experiments with dried skulls which had the sphenoids and two groups of ethmoids filled with substances of different ray-absorbing values, because in these roentgenograms the shadows of the filled sinuses were superimposed or merged to the least extent and, much more important, the boundary landmarks of these sinuses formed by known and constant anatomic structures were readily visible in them.

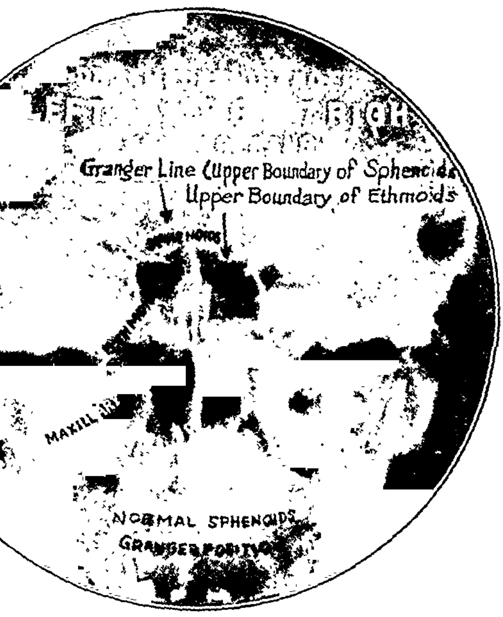
Granger Line (Upper Boundary of Sphenoids
Upper Boundary of Ethmoids
NORMAL SPHENOIDS
GRANGER POSITION

Fig. 1.—Normal sinuses in Granger position.

For the study of the sphenoid and posterior ethmoids as perfect a roentgenogram as is possible is made from this position,[2] the head resting evenly and firmly with the alveolar and glabella points in contact with the author's sinus mask or head rest, its sagittal plane forming a 107 degree angle with the table, and the central ray directed perpendicularly to the latter.

Before and since that meeting I have made roentgenograms of filled skulls in all the other positions that have been recommended and I am convinced that these do not show the same constant and clear anatomic boundary landmarks for the sphenoid and ethmoids and in all but two the shadows of the filled sinuses were superimposed to a far greater degree.

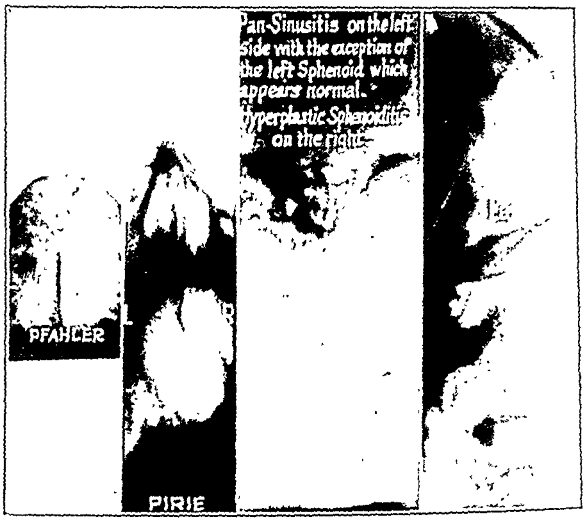
an-Sinusitis on the left side with the exception of the left Sphenoid which appears normal.
yperplastic Sphenoiditis on the right.
PFAHLER
PIRIE

Fig. 2.—Sphenoids and posterior ethmoids in the Pfahler, Pirie, Granger and lateral positions.

During the past seven years in my hospital service alone I have made more than 5,000 roentgen examinations of the paranasal sinuses and I am convinced that a careful study of the roentgenograms made in the two positions I advocate will furnish all the information necessary for a diagnosis. I admit readily that the injection of iodized oil in the sinuses will often bring out more clearly and with greater detail pathologic changes present in the sinuses, but I am also certain that in the vast majority of cases these changes could have been seen by more experienced or careful observers in roentgenograms made *without the injection* of the iodized oils.

In interpreting the sphenoid view (fig. 1) I have learned to place great reliance on the appearance of the upper boundary of that sinus, the curved (Granger) line.

When that line is distinct with clean-cut and sharp upper and lower edges, the sphenoid sinuses do not contain pus or polyps and their lining membrane has not undergone hyperplastic or degenerative changes. This is demonstrated in a most convincing manner by the following case history: A white woman, aged 36, was admitted to the hospital with a temperature of 104 F., a high leukocyte count, cellulitis of the left side of the face, sinus near the inner canthus of the left eye and the left nares completely occluded. Clinical diagnosis of pansinusitis including the sphenoid on the left side was made. Roentgenograms revealed (fig. 2) the left sphenoid and posterior ethmoid regions so opaque in the Pfahler and Pirie films that only one interpretation was possible: that these sinuses were filled with pus. In my film the Granger line is distinct and sharp on the left side, and less dense and distinct with its edges not so clear-cut on the right. On the strength of that finding and in the face of the contradicting clinical and other roentgen observations, I sent in a report that all the sinuses on the left side contained pus excepting the sphenoid, which was clear and appeared healthy, and that there were some hyperplastic changes in the right sphenoid. At operation, pus was found in the left frontal, maxillary and ethmoids, but none was found in the sphenoid after it had been freely opened, as it did not seem possible to the rhinologist that with so many pathologic changes in the other sinuses and so much occlusion of the nares interfering with proper drainage the sphenoid could have escaped infection. He not only found no pus, but the mucosa appeared perfectly healthy. The normal opening of the right sphenoid was then enlarged; it contained no pus, but its mucosa was thickened and slightly discolored.

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* From the Departments of Roentgenology of the Charity Hospital and of the Graduate School of Tulane University.

* Read before the Section on Laryngology, Otology and Rhinology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

[1] Granger, Amédée: Positive Identification of the Sphenoid and Ethmoid Sinuses, J. A. M. A. **81**: 1336 (Oct. 20) 1923.

[2] Granger, Amédée: Roentgen Examination of the Sphenoid Sinuses, Radiology **6**: 23 (Jan.) 1926.

This last condition, hyperplasia without pus or polyp so frequently diagnosed or suspected by the rhinologist, causes little or no increase in the density of the sphenoid image and it is therefore difficult if not impossible to recognize in roentgenograms made in other than my sphenoid position because those made in other positions have no Granger line to study and their interpretation is based solely on changes in the density of the sinus area; and it has just been shown that the density of the sphenoid image can be increased to a marked degree by pathologic changes entirely outside that sinus.

For the examination of the mastoid regions, roentgenograms are made in the position recommended by Law and in that described by me to the Section on Radiology during the 1926 session of the American Medical Association in Dallas.[3]

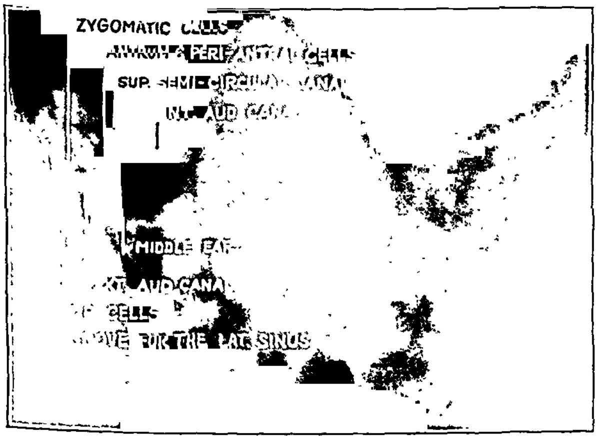

Fig. 3.—Normal mastoids in the Granger position.

The Law roentgenogram has been standard in this country for a number of years and needs no description to the members of this section.

The Granger roentgenogram (fig. 3) gives a more detailed view of the anatomy of the mastoid region and process with fewer structures superimposed. It shows the different groups of cells, including the tip cells, much more distinctly; the superior semicircular and internal auditory canals; the sharp outline of the mastoid cortex; and in this view the course of the external auditory canal is away from and does not overlie the shadow of the mastoid cells.

For these reasons a study of these roentgenograms makes it possible to state whether or not the mastoid cells are clear in cases of furunculosis of the external auditory canal with cellulitis of the external ear and in cases of periostitis of the mastoid process. Both conditions render the mastoid region so cloudy or opaque in the Law roentgenogram as to make such a differential diagnosis impossible.

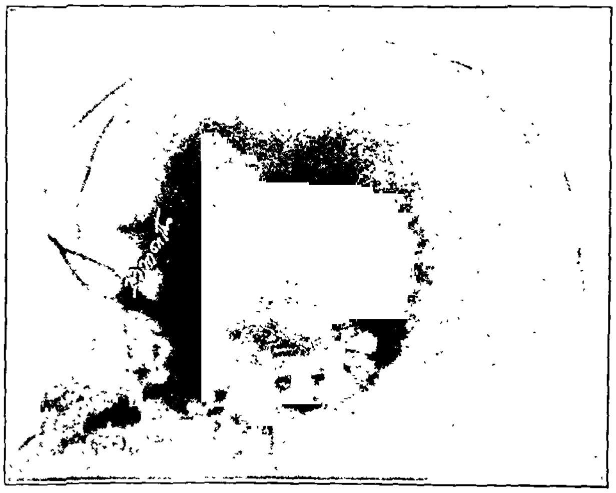

Fig. 4.—Normal mastoid of an infant, aged 2 years.

Because the superior semicircular canal and surrounding mastoid structure are clearly visible, I was able to make the diagnosis of labyrinthitis in several instances and to have the diagnosis confirmed by the usual otologic tests. And because the outline and course of the internal auditory canal is also clearly visible in these roentgenograms, I was able to make the preoperative diagnosis of tumor of the acoustic nerve in two cases referred to my hospital service from the neurologic service of that institution with the clinical diagnosis of probable brain tumor.

In infants and children under 6 years of age the Law position is the only one that can be satisfactorily employed. For the past three years I have made an intensive study of the roentgenograms of these little patients, and last December in Toronto I presented the result of that study to the Radiological Society of North America.[4] Briefly summarized, this contribution contained the three following important observations:

1. The shadow outline of the sinus plate (anterior wall of the lateral sinus and groove for the lateral sinus) normally seen in the Law roentgenograms of the healthy mastoid of adults is not seen normally in those of the healthy mastoids of infants under 2 years (fig. 4) and rarely under 3 years of age, and when it is seen in the absence of clear and unusual pneumatization it means extensive destruction of the mastoid down to the sinus plate (fig. 5).

2. In a number of cases too large to be attributed to mere hazard or coincidence, infants and babies with definite signs of infection and occlusion but not of

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[3] Granger, Amédée: New Position for Making Roentgenograms of Mastoids, J. A. M. A. 88: 372 (Feb. 5) 1927.

[4] Granger, Amedee: A Positive Sign of Extensive Destruction of the Mastoid of Infants, Radiology 14: 495 (May) 1930.

softening and destruction of the mastoid were greatly improved by the irradiation incidental to the making of the roentgenograms and went on to resolution and cure. This observation was confirmed by several competent otologists and was especially noticeable in some patients who, prior to the roentgenographic examination, had run a slow, low grade course over a period of several days without showing any improvement.

3. In a number of cases, much larger than would be expected, the amount of softening and destruction revealed in the roentgenogram and found at operation was out of all proportion to the clinical manifestations. If this is seen, no matter how indistinctly or how blurred, in the roentgenograms of infants less than 2 years of age it means extensive destruction of the mastoid down to the sinus plate. On the other hand, if it is not seen even in a poor roentgenogram of the mastoid of infants less than 2 years of age it means that extensive destruction of the mastoid does not exist.

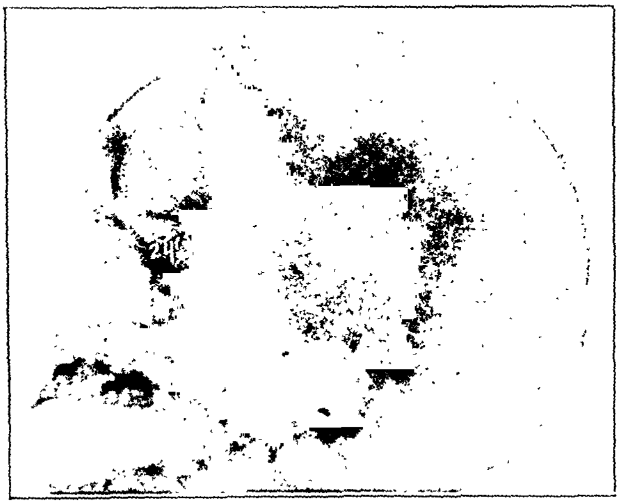

Fig. 5.—Diseased mastoid of an infant, aged 2 years, with the author's sign of extensive destruction present.

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ABSTRACT OF DISCUSSION

Dr. Lawrence Reynolds, Detroit: The sphenoid and ethmoid sinuses give the roentgenologist, as well as the otologist, the greatest difficulty in proper interpretation. Undoubtedly, the method Dr. Granger has described, in addition to other methods, will ultimately lead to a better diagnosis of these obscure cases. It is the borderline cases that give the greatest difficulty, and in those cases the various positions described by Dr. Granger would be of great help. The method I usually employ is that advocated by Pfahler and Pirie. I have not used Dr. Granger's method as much as I might. His method of examining the mastoid is interesting because it enables one to see "around the coroner." The examination is commonly made in the usual or modified Law position, but Dr. Granger's position undoubtedly gives an idea of the tip cells which the Law position does not in a majority of cases. I am extremely interested in his sign of mastoid involvement in infants. At Harper Hospital the mastoids of infants have been examined and a number of cases have been seen. Cheadle was the first to point out the three types of mastoid found in infants. He classified these as: (1) diploetic, or dense form, (2) pneumatic infantile type, and (3) adult type of pneumatic structure. In surgical cases from a given group it was found that 40 per cent fell within the first five-year period, and this being true, it was of tremendous importance to determine as accurately as possible from the films the amount of involvement and the type of structure. The pneumatic infantile type and the adult type of structure predominated in the patients of 5 years of age and under. Lang was among the first to point out the importance of roentgen examination in mastoid diseases, and he divided the roentgen appearance of the mastoid into: normal mastoid; mild, or first degree mastoiditis, in which there is replacement of air content with exudate but no actual change in the cell walls; second degree, in which there is noted, in addition to the presence of exudate, coalescence of cells, with softening and breaking down of the trabeculae; and third degree, in which practically all the cell structure is broken down. Roentgenographically, the first degree is not considered surgical, whereas the second degree, namely, where there is considerable or complete obliteration of normal cell structure, together with breaking down of the trabeculae, is considered a surgical mastoid.

Dr. Burt R. Shurly, Detroit: The checking of observations by operation, and recording them with films, is exceedingly valuable for future reference and gives a record that will establish a definite understanding of the degree of error, which may vary from 5 to 20 per cent according to skill and observation. The point of view of the radiologist has been given, but in the final analysis who takes the responsibility? The otologist! So when otologists want to bury their mistakes they have to take those of the radiologist along with them sometimes. It is my custom to roentgenograph all suspicious sinus cases, but I rely on the clinical evidence, history and examination to determine the probability of disease. Negative roentgen observations do not rule out the possibility of pathologic changes in sinuses. In regard to the interpretation of the sphenoid in figure 1, my answer would be that this was the work of an expert; but a borderline observation becomes more difficult in the hands of those radiologists who are not really interested in head work, or in the hands of the otolaryngologist of lesser opportunity, skill or interest along these lines. I believe that operation on the mastoid or sinuses should not be undertaken without the aid of careful roentgen study, with the exception of emergencies and unusual circumstances. In regard to the second contention, that a large number of cases go on to resolution and cure as the result of irradiation while the film is being taken, I challenge this statement. Many of my patients recovered before the days of the x-rays who were not operated on. Sitting in the sun, eating vitamins, and the pranks of old Dame Nature are just as valuable now as they were long ago. The value of radiology in the interpretation of abnormalities of the sinuses and mastoid is alone worth the effort and expense. I believe it is of the utmost importance that the rhinologist and laryngologist should hitch up with a competent radiologist who is especially interested in this work, and with whom the films can be talked over in each case. The interest and knowledge one attains can be developed in this way.

Dr. Harry L. Baum, Denver: One point made by Dr. Granger is worth stressing, and that is the importance of standardization of the positions in which roentgenograms are taken, so that the position for every patient may always be exactly the same. Thus a definite technic will be followed consistently in every case studied, whether sinuses or mastoids. I have used Dr. Granger's sphenoid position in many instances, and have studied it with a great deal of interest. When it first came to my attention I hoped that my problem was solved so far as sphenoid work was concerned. Further study of the position and of the patients, however, over a period of several years has led me to the final conclusion that although the position has its value—and I say this with the greatest respect for the work Dr. Granger has done—it does not give the final answer in every case of sphenoid diagnosis. There are several reasons for this which I think I am justified in mentioning. It must not be forgotten that the greatest variation in the pneumatization of the sinuses takes place in the ethmoids and the sphenoid. For example, the posterior ethmoid cells may extend back into the anterior or upper part of the sphenoid body so that the observations in the Granger position are entirely invalidated. In fact, I have an anatomic specimen in which both ethmoids have extended across the upper portion of the face of the sphenoid to join in the midline. Also, sphenoid pneumatization on one side may extend into the opposite side so that one cavity occupies practically the whole of the sphenoid body. Thus, one might be led to conclude that disease was present in both sphenoids when in reality only one was involved. And these are but examples of the numerous variations that can and do take place in the pneumatization of the sphenoid, many of which might invalidate the observations in the Granger position. The diagnosis by means of this position must be governed by one's interpretation of the changes that appear to have taken place in the upper anterior angle of the sphenoid, or the bone which forms that angle, with the addition of the effect which the presence of contained secretion may add by its gravitation downward and forward into the angle when the head is placed in the Granger position.

Dr. Amédée Granger, New Orleans: In the short time allotted it was quite impossible to cover the first part of the subject fully. I was suggesting not a technic that is to be used to the exclusion of every other position or technic but one that can be used with good results in a majority of cases and will be found sufficient. There will always be special conditions that will require the use of other positions. Dr. Reynolds is not so far away from my conclusions as would appear from his statement. Under 5 years of age, pneumatization is present. The works of Kirrisson and Politzer make that point clear. Between 2 and 5 the infant mastoid approaches the adult type and one can then see the outline of the sinus plate. Under 2 years of age, the sinus plate is not seen unless there is destruction or unusual pneumatization.

When there is unusual and early pneumatization, or when the sinus plate is superficially situated, there is not much cancellous bone overlying it and its shadow becomes visible. If the sinus plate can be seen and the cancellous bone structure or the cellular structure can be made out, the mastoid that is being dealt with is healthy. But when one side is apparently clear, with no bone or cellular detail visible, there is destruction. I am sorry that I cannot agree with Dr. Shurly about the inefficiency of the therapeutic value of fractional doses of the x-rays in these cases.

I have seen from twenty-five to thirty cases of gastro-enteritis with discharging ears in infants convalescent from bronchopneumonia and otitis media. As a rule, these little patients die. These little patients were roentgenographed and those showing the sign of destruction of the mastoid were operated on. Those who were strong enough to survive the shock of the mastoidectomy got well of the gastro-enteritis. Two in whom there was no actual sign of breaking down or destruction of the mastoid got well of the gastro-enteritis after these fractional doses of the x-rays. After seeing from fifty to sixty patients with mastoiditis without bone destruction get well with fractional doses of the x-rays, one cannot feel that it is an accident.

Measuring Intelligence.—G. Stanley Hall . . . tried, at least once, every new thing that came out. In the case of the intelligence tests, however, anxious to prove to himself that he was not weak-minded, he tried many. First of all, he tried a well known assembling test which has been largely used in the army but was new to him. After fifty minutes, he failed to complete the work, "but all these stunts were done in eight minutes by an assistant in the laboratory workshop." Then he took up one of Thurston's tests for freshmen entering college. The time allotted was twenty minutes, and Hall succeeded in completely mastering it in thirty-eight minutes. On the second Thurston test, however, he fell down. After fifty-four minutes of hard work, there remained several questions which he could not answer. "Here," Hall says, "my time was about twice too long so that my marks should be about 50 on the scale of 100—and from this should be discounted failure to answer 5 per cent of the questions." As a result of this bad showing, Hall felt that he had been too ambitious, so he took up Meyers' tests for young children in the grades. He was told to draw "a line from the first circle to the last circle that shall pass below the second and fourth circles and above the third and fifth circle" and much more of the same thing. Here he scored another failure. He was required as he said, to hold in memory, after one hearing, about fifty words and this he couldn't do—Swift, E. J.: The Psychology of Childhood, New York, D. Appleton & Co., 1930.

INDICATIONS FOR AND RESULTS OF CONSERVATIVE OPERATIONS ON THE KIDNEYS *

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In a consideration of conservative operations on the kidney, I have grouped the cases into (1) those in which there is obstruction usually due to stone in the ureter, pelvis of the kidney, or the calices; (2) those in which obstruction similarly situated, not the result of calculi, produces hydronephrosis, and (3) those in which a diseased portion of a duplicated kidney exists. On a previous occasion, I presented the results following conservative operations in the latter two groups; namely, successful resection of the renal pelvis and removal of the infected hydronephrotic portion of a duplicated kidney. I shall therefore refer to these groups briefly. After the passage of another year I still believe firmly that, if sufficient renal parenchyma remains, such kidneys can be preserved.

HYDRONEPHROSIS

In June, 1930, I reexamined a patient whose right renal pelvis had been resected eighteen months previously for hydronephrosis and whose left renal pelvis had been resected for hydronephrosis fifteen months previously. Prior to the first operation, pain, chills and fever had been present over a period of months; the capacity of each renal pelvis varied from 200 to 350 cc. and the pelves contained infected urine. The patient is now in good health, has gained 20 pounds (9 Kg.) and has not had evidence of urinary obstruction. Cystoscopic examination and estimations of the function of each kidney show the kidneys to be functioning satisfactorily; neither kidney contained residual urine. The right kidney excreted a maximal amount of indigo carmine and the urine from it did not contain pus. The function of the left kidney which, prior to operation, was the poorer of the two kidneys, although still below normal had improved since operation. I have under my care three other patients with similar types of obstruction on whom a similar type of operation has been done on one kidney successfully; the other kidney will probably be operated on in two or three months, or as soon as the condition of the patients permits. In my review of the literature I have not found a report of another case of successful bilateral resection of the renal pelvis for hydronephrosis.

The beneficial effects of simple ligation and division of anomalous obstructing renal vessels, producing moderate hydronephrosis only, should be remembered. A case in point is that of a young woman with bilateral polycystic kidneys, the right kidney being obstructed by anomalous renal vessels. In May, 1929, these vessels were divided and ligated. Subsequently, there has been relief of symptoms of urinary obstruction. In another case of renal colic in which there was uniform but not marked dilatation of the left renal pelvis and calices, ligation and division of two anomalous arteries and one vein relieved the patient of symptoms of obstruction in the urinary tract.

In connection with the foregoing cases, attention should be called to the fact that heminephrectomy or resection of a portion of the kidney will probably be most successful if arteriosclerosis is not present. The possibility of bleeding from an open-mouthed sclerotic branch of a renal artery, after resection of the kidney, may necessitate nephrectomy, and therefore the existence of arteriosclerosis must be carefully weighed in making a decision as to whether conservative operation of this type should be attempted.

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* From the Division of Surgery, the Mayo Clinic.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

URINARY CALCULI IN PRESENCE OF UNIMPAIRED RENAL FUNCTION

It is well to emphasize that renal or ureteral calculi will often produce enough obstruction to the passage of urine or reflex disturbances of unknown type to interfere with the excretion of any medium used in determining the differential function of the individual kidney, and thus lead to uncertainty as to the functional capacity of the kidney carrying the stones. With a history of renal obstruction, the finding of a shadow or shadows in the renal pelvis, calices or ureter, cystoscopic examination may show abnormal function of the kidney so obstructed and lead to the erroneous assumption that the kidney is destroyed, particularly if the symptoms have been present for a long time, when as a matter of fact the obstructive stone may have produced obstruction only recently. In such cases, especially if a ureteral calculus is present, it is advisable to remove the stone from the ureter and await the development of other indications leading to sufficient clinical evidence to remove the kidney.

A woman, aged 50, came to the Mayo Clinic, Aug. 7, 1929, with the history that in January, 1929, she had had three attacks of left renal colic in a period of ninety-six hours. It was said that a stone had been found in the ureter and had been pushed back into the pelvis of the kidney. Blood and pus were noted in the urine. Since then the patient had not had colic. The urine contained pus graded 1; a test of renal function showed blood urea 20 mg. for each 100 cc. A roentgenogram of the kidneys, ureters and bladder showed the shadow of a stone in the lower part of the left ureter 1.5 by 1 cm. After the injection of phenolsulphonphthalein there was excretion of 20 per cent from the right side and none from the left side in fifteen minutes. Excretion of indigo carmine was graded 2 + on the right and 1 + on the left. A pyelogram showed the pelvis and calices of the left kidney to be dilated, graded 3 to 4, and apparently incompletely filled. August 15, left ureterolithotomy was done. The ureter was large and there was considerable inflammation around it. It seemed advisable to remove the ureteral calculus, reserving decision until later as to whether nephrectomy was to be done. The patient's convalescence was uneventful. September 5, a cystoscopic examination and a differential functional test of the kidneys showed excretion of indigo carmine from the right kidney to be graded 4 and from the left kidney to be graded 3; there was slight infection in the left kidney. September 6, the patient was dismissed from the hospital; the wound was healed and the general condition excellent. Subsequent letters from the patient reported her condition to be excellent with no further pain; she has gained 10 pounds (4.5 Kg.). The urine was normal except for a few pus cells.

Interesting in this respect is a small group of cases of dilatation of the upper portion of the urinary tract, possibly neurogenic in origin, or the result of contracture of the vesical orifices of the ureters. In some of these cases calculi develop as the result of this obstruction. The removal of the calculi and the relief of the obstruction by plastic operation on the ureteral orifice may result in relief of the obstruction to the extent that the symptoms subside and the function of the kidney improves. In August, 1929, I removed three calculi from the right ureter of a patient who had had intermittent right renal colic for five years. There was also a history of hematuria with considerable pyuria and dysuria. The pyelogram showed dilatation of the renal pelves, calices and ureters. Dilatation was much more marked on the right side than on the left; the ureter was angulated and calculi were lodged at the points of angulation. After removal of the calculi, cystoscopic examination showed that excretion of indigo carmine from the right kidney was graded 2, and from the left kidney was graded 3. In March, 1930, six months after the operation, the patient reported excellent progress since the operation; she had not had colic or fever and had gained 35 pounds (16 Kg.).

MULTIPLE RENAL CALCULI AND LARGE BRANCHED STONES

A group of cases was studied in which multiple stones, including a large branched stone (sometimes called the stag-horn stone) completely filling the pelvis and calices, were successfully removed. In these cases nephrectomy is considered by some to be the operation indicated. The decision whether to remove the kidney or to preserve it should be dependent on the condition of the kidney and not on the technical difficulties of the conservative operation of pelviolithotomy or nephrolithotomy nor on the opinion held by some that such kidneys, if relieved of stones, will quickly form others. Experience in the Mayo Clinic, however, has been that stones reform in the kidney only rarely provided there is satisfactory renal function and adequate drainage. Unless an accurate method is used of ascertaining the completeness of the removal of renal calculi, such as immediate fluoroscopic examination, or a roentgenogram at the time of operation, there is a possibility of a stone or stones being overlooked in the kidney.

In February, 1930, I removed twelve calculi from the left renal pelvis and calices of a woman, aged 33, who had had intermittent left renal colic with chills and fever for a year. The largest stone was pyramidal and 2 cm. in diameter; the others varied from 2 mm. to 1 cm. in diameter. Because of the normal appearance of the solid portion of this kidney and of its large size, I preserved it. The patient returned to the clinic for reexamination two months later. She had gained 15 pounds (6.8 Kg.) and was not having renal colic or fever. The estimation of renal function prior to operation in this case showed that the left kidney was not excreting indigo carmine, but three months after the removal of these stones its function was normal, as evidenced by the fact that excretion of indigo carmine was graded 4. On both examinations, the function of the right kidney was normal.

It is my practice to advise operation in cases in which a large branch stone fills the renal pelvis and the ureter, if there is renal colic, hematuria or renal infection. Experience has shown that in many of these cases the entire stone may be removed completely; it is usually necessary to break the stone in two portions and again to check the accuracy of complete removal by means of the fluoroscope at the time of the operation. In a presentation of cases of this type on a former occasion, attention was directed to the fact that probably one of the important steps to insure success of the operation is conversion of the pelvis and calices temporarily from a closed into an open cavity by insertion of a catheter through the cortex following removal of the stone.

CALCULI IN THE PRESENCE OF SERIOUSLY IMPAIRED RENAL FUNCTION

The problem of treatment is difficult in the presence of marked disturbance of renal function, destruction of renal tissue, and calculi, especially bilateral calculi. Conservative operation in this group of cases is essential. Striking improvement has been noted in renal function and in the patient's general condition as the result of the removal of such calculi.

Attention is called to the case of a woman, aged 31, who had had intermittent renal colic, fever and pyuria for eight months. Right nephrolithotomy had been performed elsewhere and she presented herself at the clinic in December, 1928, complaining of continuation of her former symptoms. Shadows in both renal areas were noticed and partial renal insufficiency was evidenced by an accumulation of 65 mg. of urea in each 100 cc. of blood. Cystoscopic examination showed pus graded 2 in the urine from both kidneys; excretion of indigo carmine from the right kidney was graded 2 and from the left kidney graded 1. Left pelviolithotomy was done with removal of a large triangular stone, and one month later right pelviolithotomy was done with removal of a stone approximately a fourth the size of the other. The postoperative course was uneventful and the patient was dismissed in February, 1929, in good condition. She returned to the clinic in June, 1930; she reported a gain of 24 pounds (10.9 Kg.) and stated that her condition had been excellent without evidences of renal disturbance. Cystoscopic examination, June 7, showed excretion of phenolsulphonphthalein to be, in fifteen minutes, 5 per cent from the right kidney and 5 per cent from the left kidney. The blood urea was normal and roentgenograms of the kidneys, ureters and bladder did not show shadows of stones.

Another case of somewhat similar type was that of a man, aged 36, with bilateral pyelonephritis, impaired renal function, and calculi in the left kidney. He had had intermittent hematuria, left renal colic, and fever for one and a half years. The right kidney contained pus, graded 2, with excretion of indigo carmine, graded 2. The left kidney contained a large stone filling the pelvis and calices; excretion of indigo carmine from the left kidney was graded 1. The operation, in April, 1930, showed the kidney to be lobulated and two-thirds normal size. Under ordinary circumstances, the decrease in the size of the kidney and its abnormal appearance would have led to nephrectomy, but in view of the infection persisting and the reduction in the function of the right kidney, pelviolithotomy was done. The postoperative course was uneventful and the patient was dismissed from observation fourteen days after operation with the wound healed and the general condition excellent. Cystoscopic examination a week later showed function of the left kidney to be a little more than half of normal, and the urine to be free from pus; the function of the right kidney was reported to be slightly reduced; the urine was free from pus.

SUMMARY

A sufficient number of successful cases of conservative renal pelvic resection for hydronephrosis and heminephrectomy have been reported to emphasize the value of conservative operation in such cases rather than nephrectomy, provided a sufficient amount of normal renal parenchyma remains.

Beneficial results follow simple ligation and division of anomalous renal vessels which obstruct the ureteropelvic juncture and produce hydronephrosis.

Renal or ureteral calculi will often produce enough disturbance of renal function to lead to an erroneous assumption that the kidney may be partially or even totally destroyed, but that such is not the case is evidenced by satisfactory function of the kidney after the removal of as many as eleven stones, or of a staghorn stone filling the pelvis and calices.

Seriously injured kidneys, containing calculi, may show remarkable restoration of function following the conservative operation of pelviolithotomy.

ABSTRACT OF DISCUSSION

Dr. Henry G. Bugbee, New York: Even with the possession of all possible data in a given case, it may be necessary for the surgeon to make his decision at operation as to whether a conservative operation or a nephrectomy should be done; the best of surgical judgment is here brought into play, and more than ordinary surgical skill is necessary for obtaining successful results, if a plastic operation is advisable. While the frequency of bilateral kidney disorder, and of its subsequent appearance in its fellow after the removal of one kidney, must always be borne in mind; at the same time, the possibility of leaving a dead kidney, or one that will drain poorly, must also be considered. The work of Hinman on renal counterbalance has shown how one kidney may become functionless as the opposite organ undergoes compensatory hypertrophy; on the other hand, all have seen a seriously damaged kidney resume fair function after the disease condition has been removed. Last year, Dr. Walters presented a series of carefully selected cases in which he had carried out plastic operations on the kidney pelvis and ureters, and also a heminephrectomy. He showed preoperative and postoperative pyelograms and gave functional kidney tests. His operative results were excellent; only in one instance was a secondary nephrectomy necessary. Such excellent results have rightly encouraged Dr. Walters to report further conservative operations on the kidney. His results in cases of obstruction from stone in the ureter or kidney pelvis or calices, from similarly located obstructions, not the result of calculi, in resection of a diseased portion of a duplicated kidney and a large solitary cyst, are equally brilliant.

The cases that Dr. Walters has reported demonstrate the great importance of preoperative study, judgment and skill at operation, and the importance of postoperative study, if conservation operations on the kidney are to result successfully.

Dr. W. F. Harper, Selma, Ala.: I have had experience with one case which emphasizes the facts brought out in the paper. A youth, aged 19, had a fracture of the cervical spine, which resulted in a double infection of the kidneys. The left kidney finally became completely blocked, requiring a nephrectomy. At this time the left kidney was full of stones and multiple abscesses, and the pelvis was full of thick, creamy pus. Three weeks after the left nephrectomy, the right kidney, having had good function at the time of operation, became completely blocked. Repeated attempts with the cystoscope were made, but I was unable to unblock the right kidney. The temperature rose to 109 F. in the axilla. The right kidney was explored. It was a mass of abscesses and the pelvis was chock-full of thick, creamy pus and many stones. When the pelvis was opened, the pus must have jumped out for at least two feet. The patient remained unconscious for three days, with a temperature around 106 F. This was six years ago. Since then the same kidney has been operated on four times, stones being removed each time. The last time, six months ago, two stones were removed from the kidney, and no new stones have formed since then. The boy has gained 40 pounds (18 Kg.) and is carrying on a large business successfully.

Dr. George W. Reese, Shamokin, Pa.: What symptom or symptoms guide the surgeon in what has been demonstrated here as dormant stones?

Dr. Waltman Walters, Rochester, Minn.: The earliest plastic operations for hydronephrosis were done by Küster and Finger. Later, Quinby reawakened interest in the subject by his report of several interesting cases in which the ureter had been reimplanted into the renal pelvis. Some of these cases he had traced for as long as eight years subsequent to operation. Three years ago, Braasch and I began a series of studies in a group of cases in which I had successfully resected the hydronephrotic renal pelvis, and reports of these cases with preoperative and postoperative studies of renal function and pyelographic studies were presented last year. Braasch, in 1912, reported three cases in which heminephrectomy was successfully performed by W. J. Mayo. Hugh Young and Edwin Davis, in 1917, called attention to the fact that these three cases were probably the first successful ones in the United States. At that time they were able to find in the literature only twenty-six cases in which heminephrectomy had been done for duplication of the renal pelvis. They stated that, in sixteen of these cases, half of the kidney was normal and the conservative operation of heminephrectomy could have been done rather than nephrectomy, which had been done. McKim and Smith, in 1924, reviewed from the literature a series of 120 cases of solitary cyst of the kidney, including three of their own. In thirty-four of the series resection of the cyst was performed, with recovery in thirty-one cases. I want to emphasize again, in the treatment of multiple calculi in the kidney, that the decision as to whether the kidney should be removed or whether the conservative operation of pelviolithotomy should be done should rest not so much on the technical difficulties as on the appearance of the kidney, its size, the relative amount of renal parenchyma present, and the degree of hydronephrosis and the degree of dilatation of the calices, if any. In other words, the decision should rest on the ability of the kidney to function and drain properly.

THE INCIDENCE OF RECURRENT RESPIRATORY INFECTIONS IN CHILDHOOD *

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Respiratory infections comprise one of the great problems of the day from both an economic and a social standpoint. Sydenstricker[1] of the United States Public Health Service found that more than half of the total deaths were due to respiratory diseases, notwithstanding the fact that the ratio of respiratory illnesses to deaths from respiratory causes was 300 to 1. These figures are almost identical with the statistics of the United States Army.[2]

Respiratory infections are responsible for more than half the time lost by the wage earner due to illness. The percentage of children who lose time from school as the result of respiratory infections is probably higher than that of the wage earner. I feel that anything, no matter how small, that might help directly or indirectly to a better understanding of the clinical manifestations of the disease, in the hope that in the future it might throw some light on the solution of this great problem,[3] is well worth time and consideration.

Experimental studies and investigations in respiratory infections are being made largely along a bacteriologic line.[4] Clinical observations have been confined principally to groups of individuals, this information being obtained largely by questionnaires. Townsend,[5] Smiley [6] and Barrow [7] have reviewed the literature and have done much work. From investigations among college students, it was found that repeated colds each season were as prevalent in one section of the country as another.

Smiley [6] of Cornell University states that "smoking, exercise, cold baths, hours of sleep, draft over beds, kind of underwear, kind of footwear worn in wet weather, perspiration after exertion, constipation, exposure to dust or gas, mouth breathing, nose and throat operations and family history in regard to 'colds' had little or no apparent effect on the susceptibility of the individual to repeated attacks of respiratory infections."

Barrow [7] of Stanford University states that: "1. The incidence of colds is not markedly influenced by the various systems of heating used in the studies and living rooms of the students. 2. Whether the students use sleeping porches, well ventilated bedrooms or poorly ventilated bedrooms for sleeping purposes does not materially affect the individual's susceptibility to respiratory infections."

Apparently little or no effort is being made toward a better understanding of the clinical manifestations of the diseases by the study of the conditions in individual patients in early childhood.

Every physician, probably, has been impressed with the large number of children who have two or more distinct respiratory infections during the fall and winter months.

In 582 patients with respiratory infections seen in private practice from Sept. 1, 1928, to June 1, 1929, accurate records were made, with especial reference to recurrent infections. For comparison, 381 children with respiratory infections were observed from Sept. 1, 1929, to May 1, 1930.

RECURRENT INFECTIONS

Children are not considered as having a recurrent infection except those who were free from symptoms for at least three weeks and had previously that season been seen and treated with the primary condition.

The time elapsing between the primary and recurrent infections is calculated from the date of the last visit of the old illness to the date of the first visit of the new illness.

Many of the children in the series had other infections and were treated in the homes by their mothers or by other physicians, but owing to the inaccuracy of histories obtained from the parents, no infections are included in the series except those in children who were seen professionally.

The percentage of recurrent respiratory infections, according to ages, of the 582 children to be reported, as compared with 381 cases observed from Sept. 1, 1929, to May 1, 1930, and 361 cases reported in 1928,[8] shows that recurrent infections are common in patients of all ages, the age of the child apparently having little influence on the number of recurrent infections. Recurrent infections are as prevalent in one year as in another and occur in about the same percentage each year. Of the 582 patients with respiratory infections observed from Sept. 1, 1928, to June 1, 1929, 241, or 41.7 per cent, had one or more recurrent respiratory infections.

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* Read before the joint meeting of the Section on Diseases of Children and the Section on Preventive and Industrial Medicine and Public Health at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

[1] Sydenstricker, Edgar: Pub. Health Rep. **43**: 1067-1074 (May 4) 1928.

[2] Report of the Surgeon General, U. S. Army, to the Secretary of War, Washington, Government Printing Office, October, 1928.

[3] Sydenstricker (footnote 1). Report of Surgeon General (footnote 2). Extent of Illness in the United States, editorial, J. A. M. A. **93**: 1810 (Dec. 7) 1929. Preliminary Report of Commission on Medical Education, January, 1927-January, 1928. The Incidence of Illness in a General Population Group, Pub. Health Rep. **40**: 279 (Feb. 13) 1925.

[4] Falk, S. I.; Harrison, R. W., and McKinney, R. A.: Experiments on the Etiology of Influenza, J. A. M. A. **93**: 2030 (Dec. 28) 1929. Dochez, A. R.; Shibley, G. S., and Mills, R. C.: A Study of Acute Infections of the Respiratory Tract in the Ape, Proc. Soc. Exper. Biol. & Med. **26**: 562 (April) 1929.

[5] Townsend, J. G.: A Review of the Literature on Influenza and the Common Cold, Supp. 48, Pub. Health Rep., Washington, 1924.

[6] Smiley, D. F.: Acute Infections of the Throat and Respiratory System, J. A. M. A. **82**: 540 (Feb. 16) 1924.

[7] Barrow, W. H.: Group Susceptibility to Acute Upper Respiratory Tract Infections, J. A. M. A. **87**: 920 (Sept. 18) 1926.

[8] McLean, C. C.: Observations of So-Called Influenza Infections in Children, Arch. Pediat. **45**: 571 (Oct.) 1928.

Of 381 patients with respiratory infections observed from Sept. 1, 1929, to May 1, 1930, 142, or 37.2 per cent, had one or more recurrent respiratory infections.

WEATHER CONDITIONS

An attempt was made to see what effect weather conditions had on the number of primary and recurrent respiratory infections. Each month from September to June was divided into four weeks. The actual temperature, sunshine and rainfall each week was compared with the normal or average for the same period, and the number of primary and recurrent respiratory infections seen that week were considered in relation to the weather conditions. Apparently, weather conditions had no effect on the number of either the primary or the recurrent respiratory infections.

During the month of December, in which the peak in the epidemic was reached, 30 per cent of the total number of respiratory infections were seen and the weather conditions were apparently ideal. The temperature averaged 0.4 degree above normal. There was 13 per cent more sunshine than the average. During the month there were only five days in which it rained, and this includes the days in which there was as much as 0.01 inch of rainfall.

TONSILLECTOMY AND ADENOIDECTOMY

Recurrent respiratory infections were prevalent in both the patients who had had the tonsils and adenoids removed and in those who had not had the operation. Of the children under 3 years of age with recurrent respiratory infections, only 6 per cent had had the tonsils and adenoids removed. Of the children over 3 years of age with recurrent respiratory infections, 49 per cent had had the operation. The variation in the percentage of the recurrent incidence, according to ages, in children who had had tonsillectomy and adenoidectomy can be explained by the fact that many of the children over 3 years of age have had the operation, while very few of the younger children have had the tonsils and adenoids removed.

TABLE 1.—*Number of Patients with One or More Recurrent Respiratory Infections*

Number Patients with Respiratory Infections	Number Patients with 1 Recurrent Respiratory Infection	Number Patients with 2 Recurrent Respiratory Infections	Number Patients with 3 Recurrent Respiratory Infections	Number Patients with 4 Recurrent Respiratory Infections	Number Patients with 5 Recurrent Respiratory Infections	Number Patients with 6 Recurrent Respiratory Infections
Sept. 1, 1928–June 1, 1929						
582	158	57	18	6	1	1
Sept. 1, 1929–May 1, 1930						
381	89	39	11	3	0	0

TABLE 2.—*Percentage of Recurrent Respiratory Infections According to Age*

Sept. 1, 1928–June 1, 1929

Age in Years	Number Patients	Per Cent with Recurrent Respiratory Infection
0 to 1	90	48.8
1 to 2	115	51.3
2 to 3	83	35.2
Over 3	294	35.6
Total	582	41.7

Table 3 is the most interesting table of the series, showing a marked variation in the monthly percentage increase in the total number of primary cases, while the monthly percentage of the recurrent infections in primary cases shows little variation.

During the months of December, January and February, 353, 60 per cent of the total number of primary cases, were seen. The monthly percentage of increase varied from 7.1 per cent to 55.7 per cent. During this period, the variation in the monthly percentage of recurrent infections in the primary cases was 1.2 per cent, though more than half the total number of recurrent infections were seen.

TABLE 3.—*Monthly Percentage Increase in Total Number of Primary Respiratory Infections, as Compared with Monthly Percentage of All Recurrences in Primary Cases*

September 1, 1928–June 1, 1929

Months	Number Primary Infections per Month	Number Recurrent Infections per Month	Monthly Percentage Increase of Total Number of Primary Cases (Including Current Month)	Monthly Percentage of Recurrences of All Primary Cases
Sept.	31	1	....	....
Oct.	56	7	64.3	8.0
Nov.	94	18	52.0	9.9
Dec.*	228	58	55.7†	14.1‡
Jan.	87	64	17.5	12.9
Feb.	38	73	7.1	13.6
Mar.	24	57	4.3	10.2
Apr.	13	46	2.2	8.0
May	11	27	1.8	4.6
Total....	582	351		

* In comparing the monthly percentage increase of the total number of primary cases with the monthly percentage of recurrent infections of the total primary cases, the current month must be included, as a certain number of the recurrent infections are recurrences of the primary cases of the current month.

† The monthly percentage increase of the total primary cases for the month of December, 55.7, is obtained by dividing 228 by 409 (the sum of 31, 56, 94 and 228).

‡ The monthly percentage of recurrences of total primary cases for the month of December, 14.1, is obtained by dividing 58 by 409.

During the months of September, October, November and December there is a marked increase each month in the number of both the primary and the recurrent respiratory infections. During the month of December the peak of the epidemic is reached. From December to June each month shows a sharp reduction in the number of primary cases, but this is not true with the recurrent infections.

In the month of December, 228, or 39.1 per cent, of the total number of primary cases were seen. There were 58 recurrent infections.

In January, 87 primary and 64 recurrent infections were seen. There were 141, or 62 per cent fewer primary cases than in December. There was an increase of 6, or 10 per cent in the number of recurrent infections, notwithstanding the 62 per cent reduction in the number of primary cases.

In February, 38 primary infections and 73 recurrent infections were seen. There were 49, or 56 per cent, fewer primary cases than in the preceding month. There was an increase of 9, or 14 per cent, in the number of recurrent infections.

From these observations, it seems that contact with other individuals who have the disease has little or no influence on the number of recurrent respiratory infections and a marked influence on the number of primary respiratory infections.

The chart shows the weekly incidence of all the recurrent respiratory infections in the primary cases. The peaks in the weekly incidence of the total recurrent infections are the fourth, seventh, thirteenth, fifteenth, eighteenth and twenty-first weeks.[9]

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[9] When it is stated that a recurrent infection occurred in four weeks, it means that the child's illness with the second infection began some time between the third and the fourth week from the date of the last visit of the old illness to the date of the first visit of the new illness. If the recurrence is five weeks, the illness began some time between the fourth and the fifth week from the date of the last visit of the old illness to the date of the first visit of the new illness and thus according to the week stated.

The recurrent infections in the younger children reach their peak a week earlier at the seventh and thirteenth weeks. At the fifteenth week the older children do not show a peak. At the fourth, eighteenth and twenty-first weeks, the peaks are the same in children of all ages.

The variation in the peaks of the seventh and thirteenth weeks might be due to one of two things: the younger children are sicker and the physician is called earlier, or the parents' interests are more centered in the younger children.

When the inaccuracy of the methods of estimating the time between the end of the old illness and the beginning of the new is considered, the consistency in the peaks of the recurrent infections is the more remarkable and suggests that a respiratory infection is a periodic recurrent disease.

OTHER OBSERVATIONS

The upper respiratory types of infection predominated, the larger number of cases being of a nasopharyngeal and tonsillar type.

One hundred and three patients had definite ear involvements. Sixteen ear drums discharged spontaneously a blood-stained serofibrinous exudate, smears showing few pus cells and many organisms. In the majority of cases, the ears were dry at the end of forty-eight hours. Eighteen patients had one or both ears punctured. No ear discharged pus longer than three weeks. The majority were dry at the end of a week and in none of the cases were there signs or symptoms of a mastoid involvement.

Clinically, the nonirrigated ears did better; the discharge was of a shorter duration and less profuse than in the cases in which irrigation was used.

In forty-three cases spasmodic croup was one of the most pronounced symptoms.

TABLE 4.—*Percentages from Sept. 1, 1929, to May 1, 1930* *

Months	Number Primary Infections per Month	Number Recurrent Infections per Month	Monthly Percentage Increase of Total Number of Primary Cases (Including Current Month)	Monthly Percentage of Recurrences of All Primary Cases
	Sept. 1, 1929–May 1, 1930			
Sept.	23	0	....	....
Oct.	50	2	68.5	2.7
Nov.	81	20	52.6	12.9
Dec.	51	25	24 8	12.2
Jan.	43	38	17.3	15.3
Feb.	50	47	16.8	15.8
Mar.	49	47	14.1	13.5
Apr.	34	33	8.9	8.6
Total....	381	212		

* To be compared with table 3. The same consistency in the monthly percentage of recurrent infections in the 381 patients observed from Sept. 1, 1929, to May 1, 1930, as in the 582 cases reported is shown even though there was no epidemic this season.

There were twenty-two cases of cervical adenitis, many of them being characterized by high and widely fluctuating temperature of a two and three weeks' duration.

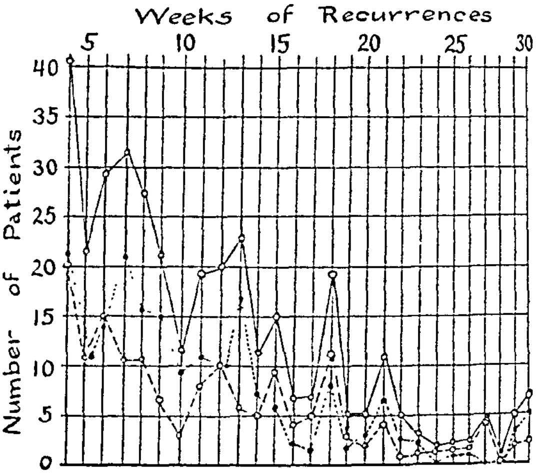
Ulcerative stomatitis was noted in ten cases.

There were 120 patients in whom bronchitis was the most pronounced symptom. Of these, forty-seven were of an asthmatic type.

There were fifteen cases of lobar pneumonia; of these, four developed empyema. The ages of the patients with empyema were 5, 6, 7 and 8 years. Cultures and smears of two cases showed a pneumococcus and two a hemolytic streptococcus, one of the hemolytic streptococcus patients having a double empyema. The four patients were operated on under local anesthesia and made a good recovery.

In sixty-five of the cases, nausea, vomiting, dehydration, pain in the abdomen or diarrhea were among the most pronounced symptoms.

There were two deaths: One child, aged 12 months, had a congenital malformation of the heart, developed a bronchopneumonia and died in twenty-four hours.



Weekly recurrent incidence of all the recurrences in the primary respiratory infections: solid line, total recurrences; dotted line, recurrences in children over 2 years of age; broken line, recurrences in children under 2 years of age.

The other case was rather interesting: A boy, aged 2 years, had a sudden onset of nausea and vomiting. The temperature was 106 F. He had a slight bronchitis. The white blood count was 20,500; neutrophils, 88 per cent. The child was thought to have an influenzal infection with a probable pneumonia. At the end of forty-eight hours the right elbow and right knee were swollen, inflamed and extremely tender. There were some slight cerebral symptoms. A blood culture was made. The next day the condition was worse; cerebral symptoms were more marked. A spinal puncture was done; cloudy fluid under pressure was obtained; smears and cultures showed a small gram-negative bacillus with all the cultural characteristics of Pfeiffer's bacillus, a blood culture showing the same organisms.

SUMMARY

1. Of 582 children with respiratory infections observed from Sept. 1, 1928, to June 1, 1929, 241, or 41.7 per cent, had one or more recurrent infections.

2. Weather conditions apparently had little or no effect on the number of primary or recurrent respiratory infections.

3. The recurrent infections were apparently as common in the patient who had had tonsillectomy and adenoidectomy as those who had not had the operation.

4. The monthly percentage increase of the total number of primary cases showed a marked variation, while the monthly percentage of recurrences in primary cases showed little variation.

5. Contact with individuals who had the disease seemed to have a marked influence on the number of primary infections.

6. Apparently, contact with individuals with the disease had little or no effect on the number of recurrent infections.

CONCLUSION

The consistency in the periodic recurrent incidence in respiratory infections, as observed over an eight year period, is more than suggestive of a periodic recurrent disease.

2012 South Tenth Avenue.

ABSTRACT OF DISCUSSION

Dr. Franklin P. Gengenbach, Denver: There seems to be an increasing number of primary colds in the winter up to a certain point, which in Birmingham reaches its peak about December. Dr. McLean has arbitrarily accepted for his statistics only cases he has seen himself and recurring infections in which there has been an interval of at least three weeks from the last visit he paid in the previous infection and the first visit in the infection following. It might have been perhaps more valuable to know the actual number of cold infections that the child had during the winter. It is quite evident from these figures that most of the colds come at a time when there is the greatest difference between inside and outside temperatures. There is no question that the tendency to colds is increased by the overheating of houses and apartments. As people come in contact with the low outside temperatures, either through the open windows or when they go outdoors, the tendency to colds is increased. An interesting observation was that in the children of older age, 2 or 3 years or older, there were practically as many colds and other respiratory infections in those who had their tonsils out as in those who had their tonsils intact. This again serves as a warning that when physicians advise having tonsils and adenoids removed they must not promise their patients too much. I am sure that too many men advise tonsillectomy simply on the basis of recurrent colds and without distinct evidence of infection of the tonsils. My own custom is practically never to advise tonsillectomy unless there is a persistent enlargement of the cervical glands that drain the tonsils. These recurrent colds coming after tonsillectomy involve the lymphoid tissue in the pharynx, particularly behind the posterior pillars, and often it becomes hypertrophied and cryptic. That is why there are just as many colds and sore throats and often just as many cases of cervical adenitis in those in whom the tonsils have been removed. That does not mean that no advantage is secured in having the tonsils and adenoids removed. My own observation is that, while these children may appear to get as many respiratory infections, they throw them off much more quickly and are much less likely to have severe complications.

Dr. W. G. Smillie, Boston: Field studies have been made of the effect of environmental influences on colds in various parts of the world. The first was in Alabama, in an isolated community. The second was along the Labrador Coast, up the Northwest River about a hundred miles, in a community of Indians and traders, during the summer of 1928. The following year a study was made on an isolated island of the West Indies. The next field study will probably be conducted in Spitzbergen, under the arctic circle. The studies show that colds are less prevalent and much less severe in the tropics than in the temperate zones. The seasonal incidence of colds shows a very low rate in the summer months, a peak in October, with a fall and then a distinct peak in January or February, with scattered cases through the late spring. This indicates some relationship between changes in atmospheric temperature and colds. Even in the tropics, where the temperature varies only a few degrees from winter to summer, one finds the usual incidence curve noted in the temperate zones, in which temperature changes are much more abrupt. The relationship of rainfall, maximum and minimum temperature, barometric pressure and other factors with the incidence of colds has been studied without finding any correlation. So far as can be told from the bacteriologic observations, no known organisms are related to the incidence of epidemics of colds. There seems to be a definite relationship, however, between certain micro-organisms and the occurrence of complications of colds, colds of long standing, and recurrent colds. Pneumococci and influenza bacilli seem to be the chief offenders. The striking thing about the incidence of the disease in the tropics is that, although people have colds, these colds are very mild and are not complicated by middle ear disturbances, pneumonia, bronchitis or sinusitis.

Clinical Notes, Suggestions and New Instruments

TRAUMATIC PERFORATION OF ESOPHAGUS WITH MEDIASTINITIS; OPERATION AND RECOVERY

Harry Meyersburg, M.D., Brooklyn

A white woman, aged 60, with a negative past history, was admitted, Oct. 17, 1928, seven hours after she had swallowed some bottled horseradish containing particles of glass. She immediately felt a sharp pain in her throat, followed by pain in the epigastrium and right shoulder. She attempted to induce vomiting with her finger and brought up some bloody food particles. She came to the hospital because of an increase of pain in the throat. She had tenderness over the xiphoid cartilage and between the tenth and twelfth vertebrae. There was no abdominal tenderness or spasm.

Indirect laryngoscopy was negative. A roentgenogram was taken following a barium meal and revealed a slightly irregularly outlined opaque mass at the level of the clavicles, not at all typical of a diverticulum and probably an extravasation of barium into the tissue about the esophagus; there was an irregular area of increased density in this region which might possibly be a foreign body coated with barium. Esophagoscopy was performed and revealed a deep abrasion at the mouth of the esophagus at the level of the cricopharyngeus, and a sausage skin covered with barium was removed. The temperature, pulse and respiration were normal. Blood examination revealed white blood cells, 12,400; polymorphonuclears, 82 per cent, and hemoglobin, 76 per cent. The blood pressure was 150 systolic and 78 diastolic. Urinalysis showed an occasional cast and a trace of albumin.

The next day, October 18, she made the same complaint and her general condition appeared to be worse with a temperature of 99.4 F., pulse 100 and respirations 20. A roentgenogram on this day showed a greater retention of barium at the level of the clavicles. October 19, the patient's condition was poor; she was cyanotic and having labored breathing. There was some crepitation of the neck tissues and an examination of the chest suggested an extension to the right base. The medical advice was to permit the patient to have complete rest with no intervention. However, esophagoscopy was performed the same day and forceps were carried through the lacerated fibrinous area located to the right on the posterior wall at the level of the cricopharyngeus, with the liberation of a foul creamy pus under pressure.

External drainage was immediately decided on and local anesthesia was used. An incision was made along the anterior border of the right sternomastoid, and the esophagus was reached by dissecting through the planes of cleavage. In the region of the cricoid cartilage just posterior to the esophagus in the midline, foul pus was encountered which was found to extend well into the superior mediastinum. The foot of the table was elevated and two iodoform strips were placed as far as possible into the mediastinum and two along the upper portion of the esophagus. The wound was closed loosely with a few sutures. A Rehfuss tube was then introduced under direct vision and the patient was put to bed feeling more comfortable.

A roentgenogram then showed evidence of pleuritis with effusion in the right side of the chest and the mediastinum. A culture of the pus did not show any gas bacilli. The patient expelled the Rehfuss tube the same evening and was not fed by mouth for three days, after which she was started with fluids by mouth. The following ten days after operation the temperature varied between 98.6 and 102 F. daily, after which it remained normal. She received a therapeutic x-ray exposure for mediastinitis, October 20, and a roentgenogram, October 25, showed an increase of mediastinal shadow with some pneumonic involvement at both bases. Esophagoscopy, October 29, revealed a healed laceration. The patient was up and about, November 5,

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* From the author's service at the Long Island College Hospital.

* Read before the otolaryngologic section of the Medical Society of the County of Kings, March 12, 1930.

No patient should be permitted or told merely to exercise his arm. It is the duty of every physician prescribing exercise to give definite directions as to the amount and kind. In the case of the patient with average intelligence, the anatomy of the part to be exercised and the reasons for the exercises should be explained to him. To those who understand considerable human anatomy, definite instructions should be given.

In giving directions for exercises it should be impressed on the patient that although heat, massage and electrical stimulation are used for his weak muscles, these are only to increase the circulation and nothing will increase muscle power but active exercise, which requires volitional effort on his part. To insure the proper regimen of treatment, definite written instructions for exercises should be given the patient and proper occupational therapy prescribed.

Muscle reeducation is that form of therapeutic exercise given to muscles in which the neuromuscular coordination has in some way become partially destroyed. The reflex arc has become involved, making it impossible for the muscles to move by means of the reflex mechanism. As a result, coordinated movement is lost. To reeducate muscles under such conditions two things are necessary: first, to reestablish a better coordination between the remaining nerve fibers and cells supplying the affected muscle, and, second, to secure the contraction of the desired muscle, however feeble.[5]

Mackenzie says that if a muscle is weakened or paralyzed, whether from injury of muscle, nerve or central cell, it is rested when its opponent is in a state of relaxation or elongation beyond the state normally regarded as necessary to produce a condition of equilibrium with its opponent. This is the zero position. Reeducation of a paralyzed muscle begins at zero and is the encouragement of voluntary muscle movements within functional limitations. The amount of work at this minimum may be slight, but it is the maximum function of the muscle at this time, and the muscle may soon become exhausted.[6]

Curative occupational therapy is a form of therapeutic exercise which requires a series of specific voluntary movements, initiated by the patient, which form component parts of a more complex and coordinated movement. This exercise is designed for the express purpose of securing definite end-results and is a direct incentive for sustained effort.

The ordinary physical treatment given to a patient lasts, at the most, only an hour. The mechanical exercises given have certain definite limitations. The human body is more than a machine, and the formal repetition of a movement either with or without an apparatus is not of maximum therapeutic value in increasing the amount of movement in a stiff joint or as an integral part of a large coordinated movement. There is no pschologic stimulant for personal initiative, or for sustained effort. The patient can be told to exercise, but unless occupational therapy is used there is no incentive and interest provided to continue the exercise.

In physical therapy the patient's attention is focused on the injury while in occupational therapy his interest is in the work.

THERAPEUTIC EXERCISE FOR THE SHOULDER JOINT

The shoulder joint, anatomically considered, is peculiarly liable to injury. It is a known experimental fact that, when movement of a joint is stopped and the part immobilized, muscular atrophy takes place within two hours. Therefore, in view of the importance of the musculature of the shoulder joint relative to injury, it may be stated that one of the most essential elements in the treatment is early exercise because the restoration of function of the shoulder is dependent to a large extent on proper muscle action. Physical therapy plays an important part in the restoration of its function. Of the forms of physical therapy used, therapeutic exercise stands out most prominently in assisting in the more rapid restoration of normal function.

It is well to know just what structures are involved. For the purpose of more easily understanding them, they can be divided into periarticular and intra-articular, the former representing all those without the capsule and the latter those within the capsule. It is necessary not only to know what parts are injured but also to determine the extent of injury. These may be a simple strain of the muscles due to overuse or a complicated fracture dislocation with extensive involvement of all structures both periarticular and intra-articular. Severe injuries produce a marked extravasation of coagulable fluid into the surrounding tissues which results in the formation of fibrous adhesions. Since the muscles of the shoulder joint hold it in its normal position, an injury to them becomes a serious matter. In addition, the intra-articular surfaces may be injured, as for example a fracture into the joint causing damage to the synovial membrane and cartilage. This, again, produces adhesions within the joint and increased synovial fluid. It is this destruction of tissue, the extravasation of fluid, and the subsequent formation of adhesions that result in muscle spasm and limitation of movement. It is, therefore, toward the restoration of their function that the treatment is aimed.

Mackenzie, in his classification of muscles moving the humerus, points out the important fact that the abductors of the shoulder joint are the relatively weak deltoid and the supraspinatus and that the adductor is the strong pectoralis major. The external rotators are the weak infraspinatus and the teres minor, while the internal rotators are the strong latissmus dorsi and the subscapularis. With this in mind, it is well in shoulder joint injuries requiring prolonged immobilization to put the arm in abduction and external rotation. This can be done in an aeroplane splint or in a plaster cast with the cover of the cast cut so that it can be raised. The muscle origin, insertion and action determine the splinting. Therefore, if after a shoulder joint injury the arm is bound to the side, the anatomy, physiology, and pathology are ignored. Too frequently, this position is maintained for three weeks or more with the strong muscles shortened and the weak ones stretched, and in addition the weight of the upper limb dragging on the weakened deltoid supplied by an injured nerve.

In intra-articular involvement a cardinal point brought out by Dr. Lovett [5] is that the secretion of the synovial membrane is stimulated by motion of the joint and diminished by rest. With an injury to the synovial membrane, the absorption power and circulation in the surrounding area is seriously affected. Therefore, if the joint is moved too soon with such a blockage, the only result obtained will be an increase in fluid within the joint cavity producing more pain and increased pathologic changes. Such a joint requires rest to permit the excessive fluid to be absorbed. With a complicating fracture into the joint, it can be readily seen that active movement must be delayed and that carefully regulated passive motion must be instituted to prevent adhesions from forming. Active exercise should be encouraged only when the bones have had sufficient time in which to unite. In fractures about the head of the humerus the same principle holds true, and when passive motion is used the fracture should be closely splinted and well supported.

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[5] Jones and Lovett: Orthopedic Surgery, New York, William Wood & Co., 1929, 2nd Edition.

[6] Mackenzie: The Action of Muscles, ed. 2, New York, Paul B. Hoeber, Inc., 1930.

Other structures that may be injured in the periarticular portion of the shoulder other than the ligaments, tendons, muscles, blood vessels and nerves are the bursae, the chief of which is the subacromial or subdeltoid, located between the under surface of the deltoid muscle and the outer surface of the capsule. Because of its close association to the joint, it is peculiarly liable to injury and requires special treatment.

Before prescribing therapeutic exercise for shoulder joint conditions, the underlying pathologic condition must be understood. This means that a thorough examination and diagnosis must be made. A careful inspection and palpation of this region interpreting the limitation of motion in terms of muscle origin, insertion and action will often prevent the misinterpretation of a roentgenogram. There are no injuries about the body in which a knowledge of muscle action is more important than in the diagnosis and treatment of shoulder injuries. A joint must be considered physiologically as a whole with no one component being injured without having an effect on the whole mechanism. It is necessary to understand the various movements of the shoulder joint and the extent of their range. It is well in this connection to compare the movements with the sound side. Beevor's classification is given herewith for the normal shoulder joint.[5] These movements, summarized, are flexion, extension, hyperextension, abduction, adduction, horizontal adduction and abduction, and internal and external rotation. Each of the movements, together with the number of degrees possible, is given for the normal shoulder. It is to be understood that different individuals may differ with regard to extent of movement and, therefore, it is always necessary to compare the injured side with the sound one.

Flexion of the humerus: Place the arm at the side and raise it to front horizontal, and then above the head until vertical. This is the anteroposterior plane and produces an arc of 180 degrees. This is the normal range for flexion.

Extension of the humerus: With the arm above the head in extreme flexion, move it downward and forward to its original position at the side. This brings the arm through the same anteroposterior plane and the range is through the same 180 degree arc.

Hyperextension of the humerus: With the arm at the side, move it backward as far as it will go through the same plane. The average degree of movement for this distance is 45 degrees.

Abduction of the humerus: With the arm at the side, carry it laterally to a side horizontal position at a distance of 90 degrees. At this point the movement in the shoulder joint is stopped by the tension of the capsule. From then on the movement is carried out by the scapula until it arrives in a vertical position above the head, covering a distance of 180 degrees.

Adduction of the humerus: The arm is again carried down through the same lateral plane, through the same number of degrees to the side of the body.

Horizontal adduction and abduction: The arm is placed in side horizontal position and the arm is then brought forward to a front horizontal position. This is termed adduction and the arc range is 90 degrees, which is much extended by scapular movement. Abduction is just the opposite of adduction and through the same plane and a 90 degree range.

Internal and external rotation: The arm is abducted to a horizontal position, the elbow flexed and the forearm at right angles, which brings the shoulder joint in a position of external rotation. Bringing the forearm forward and downward produces internal rotation. The arc is 90 degrees in this plane. With the arm in partial abduction and the forearm extended, the degree of rotation increases to 135 degrees.

It is important to note here that the scapula takes part in practically all movements. The determination of the actual range of shoulder movements is difficult and inaccurate. As the mobility of the scapula is highly variable, all angular movements in and about the shoulder joint must be necessarily approximate.

Each of these movements should be done and the number of degrees measured and properly recorded. In order to obtain some idea of the degree of disability, a record of the progress should be made at definite intervals of time. If the movements are found to be limited in all directions, there is in all probability an arthritis. If, however, there is limitation in only a few directions, it is probably a periarticular injury and limited to the soft parts. If the second examination shows no increase in range of movement there may be complications and another thorough examination should be made.

If the range steadily increases even though there is some occasional pain, progress is being made in the right direction.

ROUTINE MANAGEMENT OF A SPRAIN OF THE SHOULDER JOINT

The first objectives are to control the hemorrhage, to prevent the overstretching of the weaker and injured muscles and the contracture of the stronger antagonists, and to encourage healing.[7]

The patient is placed on a padded table in the supine position with the arm resting on a smooth rectangular board. The arm is carefully moved to a horizontal position and the forearm flexed and in external rotation. The whole region is then covered smoothly with cotton or sheet wadding, and over this a firm spica is applied. An aeroplane splint is then put on with the arm in abduction and external rotation, the position of greatest physiologic rest. Within three hours the spica is removed and in its place an elastic ace bandage is put on. It is well to apply the ace bandage during the early stages of treatment for the reason that the blood vessels are allowed to relax and in this way a fresh blood supply is brought to the part, and the reapplication assists in squeezing out the extravasated débris. By this method the hemorrhage has been controlled and the weaker muscles have been placed in a state of physiologic rest, and by so doing the stronger antagonists have been prevented from forming contractures. This position naturally favors healing, by placing the injured muscles in a relaxed position.

The second objectives are to prevent stiffness due to the formation of adhesions from immobilization, to restore the circulation to normal, to rid the part of extravasated fluid, and to prevent the atrophy of the muscle.

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[7] Whitelocke, R. H. A.: Sprains and Allied Injuries of Joints, Oxford Medical Publications, 1930.

Just as soon as the acute symptoms have subsided and healing has progressed, it is time to start therapeutic exercise in conjunction with other preliminary physical therapy measures. At the end of from twenty-four to seventy-two hours, the acute symptoms in most cases have abated. The patient is placed in a position of complete repose, lying on a padded table in the supine position, with the injured arm on a smooth rectangular board which has been powdered. At this point it is well to be certain that the patient is completely relaxed. For this reason heat and a light stroking massage are used,[1] just before the aeroplane splint is removed. The influence of and use of external heat is well set forth in a report by the Council on Physical Therapy of the American Medical Association.[8]

The tissues are put in a condition to benefit by massage and mobilization. Dry heat is the form used and may be given with a radiant light lamp for a period of from half an hour to an hour. This is followed by very light stroking massage, which helps materially in giving relaxation.

With complete relaxation, passive movement is now started. The patient is properly grasped by the operator with the arm in the same position as it was in the aeroplane splint. One hand of the operator firmly takes hold of the arm just above the elbow and the other grasps the hand. The arm is first brought through just one or two movements in the horizontal plane, the operator constantly on the alert for muscle spasm. It must be borne in mind in using passive movement that it is much better to bring the arm through to its capacity for movement. When muscle spasm occurs one should stop and hold at that point for a few moments, say to the count of five.

The joint range having been increased by means of passive movement, the way is prepared for active exercise. The first forms of active exercise used are of the assistive and free types. With the arm in the same position as for passive movement and resting on the same smooth, well powdered, rectangular board, the operator adducts the arm to the range previously acquired by passive exercise. The patient then abducts it to side horizontal positions. Fibrillation of the deltoid may occur and, if such is the case, assistance is given. Here the operator gently produces light pressure upward at the elbow and helps the deltoid to contract. As the movement gains power, the patient completes the arc without assistance and this is termed free movement.

Each day the amount of assistance is lessened and true free movement is instituted. By so doing the normal neuromuscular response is called into play and with it increase in the range and power of muscular movement. In the same plane, light resistive exercise may be applied by gentle attempts to stop abduction. Thus there is gradual progression from assistive exercise through to the resistive type.

Resistive exercise can now be started in earnest, and the operator can work in all planes, first assisting and later adding resistance. At this point the patient can gradually be raised to a sitting position, and by so doing the resistance of gravity is added. Assistive exercise may have to be combined with the resistive as the patient is raised, assistance being given in the first and last thirds of the arc of movement.

The range and strength of the muscles of the shoulder have been increased now in all planes because of the carefully regulated assistive, free and resistive exercise. The operator's work is now combined with a series of exercises which the patient is taught for home use. The following are suggested exercises. The particular exercises to be used should be underlined. The number of times each movement is to be used must be indicated.

HOME EXERCISES FOR THE SHOULDER

1. While the shoulder is in the splint, contract deltoid and then relax without moving the shoulder joint or using other muscles. This is to be done as often as the patient feels disposed during the day. Stop just as soon as the muscle tires.

2. Lying on the back, the arm and shoulder on a powdered cardboard, in the same position as in the splint, forearm supported, the operator adducts the arm a few degrees, and the patient brings it to the original position. Increase the range of motion.

3. Same position as 2, revolve the forearm until the back of the hand touches the table.

4. Same position as 2, move the arm across the body so that the hand touches the opposite shoulder.

5. Lying on the back with the arm at the side and the forearm flexed at right angles, bring the arm forward and up and return.

6. Lying, face down, the hands in back of the neck: (*a*) Raise both elbows and the head from the table without raising the body. (*b*) Raise the elbows with some one putting pressure on the elbows.

7. Standing, with the arms at the side, swing to the front, horizontal and then above the head and return.

8. Standing, with the hands clasped behind the back, fingers interlocked, the palms facing up, turn the palms in and down, and extend the arms to the rear at the same time.

9. Standing, with the hands at the side, swing the arm to side horizontal and then above the head and return.

10. Standing, with the arms in the front horizontal position, swing to the side horizontal position, to front horizontal position and return to original position.

11. Shoulder shrug.

12. Standing with arms in side horizontal position, move arms in small and large circles and in both directions.

13. With the arms in side horizontal position, rotate arms so palms are alternately up and down.

As the strength of the patient increases, more resistance can be added with books or dumb-bells, starting with light weight and increasing the weight as the capacity of the patient increases.

The pulley weights can be used to increase the resistance.

Curative occupational therapy for shoulder cases should be definitely prescribed. It can be used in any place with a little ingenuity. For instance, "braid weave" rug weaving may be used. No shuttle or beater is necessary and no sewing is required. The method does not require a complicated loom. The weaving, partaking somewhat of basketry, is fascinating and simple.

The loom can be home made. It is 30 by 50 inches, made of 1½ by three-fourths inch wood. A series of one-fourth inch slits at the top and bottom half an inch apart accommodate the warp. Along the inside a half-inch from the inside edge of the loom are brass one-fourth inch curtain rods to hold the weaving in perfect alinement and to insure a straight edge to the rug. The weaving is done with rags, which may be colored and a pattern followed. These looms may be made in various sizes and placed in various positions to conform with the patient's strength and to the joint movements required. By placing the loom high on a wall shoulder flexion, external rotation and abduction of the shoulder may be obtained. These looms may of course be purchased complete. After proper instruction the patient can use this loom at home.

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[8] Pemberton, Ralph; Weisenburg, T. H.; Gill, A. B., and Schamberg, J. F.: The Influence and Therapeutic Use of External Heat, J. A. M. A. **89**: 1243 (Oct. 8) 1927.

CONCLUSIONS

In shoulder joint cases, therapeutic exercise is used according to the principles previously mentioned, starting with passive movement, progressing to assistive exercise and using muscle training if necessary and then using free and resistive exercises, which include occupational therapy.

(To be continued)

The Chemical Laboratory

The following is a report of the American Medical Association Chemical Laboratory. Paul Nicholas Leech, Director.

ALBUTESTA

A Proprietary Reagent

Albutesta is a coined name for a chemical reagent to detect albumin in urine. The makers of this product, Menley & James of London, England, and also of New York, have been noted in the past for unscientific proprietaries. For instance, at very frequent intervals physicians receive through the mail free samples of "Iodex," a black ointment sent out in small, circular, aluminum boxes. A few years ago a claim was made by the firm that this ointment contained 5 per cent of free iodine, minus the objectionable features that go with free iodine. Work done in the A. M. A. Chemical Laboratory showed, first, that the product did not contain iodine in the free form but in the combined form and, secondly, that there was less than 5 per cent of total iodine present (The Journal, June 19, 1915, p. 2085). Again in 1919 the laboratory examined market specimens of "Iodex" and found, as before, a deficiency in iodine content, about three fifths of the amount claimed. It was pointed out that it was impossible to have free iodine present in sufficient quantities to be therapeutically efficient and not get skin stains or irritation. Later the laboratory analyzed the companion proprietary, "Liquid Iodex," which was claimed to be a nonirritant preparation of iodine and to contain "free iodine." On examination at that time this product was found to contain only about 0.16 per cent of free iodine and about three fifths of the total iodine claimed.

Now another proprietary of this firm is extensively advertised to physicians, Albutesta, a new test for albumin. Some of the claims made for the preparation are as follows:

"Dependable". "Non-poisonous" "Does not stain the hands" "Just a few drops in the test tube reacts immediately. No boiling, no acid. Takes but one-quarter the time of the older tests. Its dependability and simplicity suggests home testing in maternity cases." The price for this so-called new test for albumin is $1.

Original packages of Albutesta were purchased by the A. M. A. Chemical Laboratory and subjected to examination. In each trade package there was a one ounce flint bottle containing 33 cc. (approximately 1 fluidounce) of a colorless liquid, a crudely constructed medicine dropper and a small test tube. The solution was odorless and possessed a distinct sour taste. The reaction of the mixture to litmus was distinctly acid.

No information concerning the composition of Albutesta[1] appeared on the trade package. No circular accompanied the product.

Qualitative tests indicated the presence of an organic acid, indicative of sulphosalicylic acid.

The results of the quantitative determinations were as follows:

Specific gravity at 25 C.	1.078	
Total solids (residue on evaporation)	17.55	per cent
Ash	0.02	per cent
Sulphosalicylic acid (by titration)	16.99	per cent

It appears, therefore, that Albutesta is simply a proprietary name for a preparation having the essential qualities of a 20 per cent aqueous solution of sulphosalicylic acid. Albutesta sells for $1. The cost of ingredients of 1 ounce of sulphosalicylic acid solution, 20 per cent, is about 5 cents.

In any chemical analysis it is almost axiomatic that the analyst must know the composition or definite attributes of the reagent he is using if he expects to be at all scientific. It is, therefore, stupid to make chemical tests, on which clinical interpretations are to be made, with a reagent the composition of which is not known and under conditions in which there may be interfering substances. The limitations as well as advantages of any reagent should be known. If one desires to use the sulphosalicylic acid test for albumin he should use a solution of known strength and composition.

Roch[2] was the first to use the substance as a precipitant for protein in the urine and at that time sulphosalicylic acid impressed many workers, primarily MacWilliam,[3] who demonstrated its differential value. Witthaus[4] some years later in his manual described the use of Roch's reagent (sulphosalicylic acid). However, Wood[5] elucidated a qualitative test using a 20 per cent aqueous solution. Since then various methods of using sulphosalicylic acid in determined strengths for determining albumin in urine have been described by biochemists, such as Folin[6] and Exton.[7] Hence, its use in clinical chemistry is *not* new.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

McKESSON'S VITAMIN CONCENTRATE OF COD LIVER OIL.—A cod liver oil concentrate having not less than eleven times the minimum vitamin A potency of cod liver oil, U. S. P., and not less than eleven times the vitamin D potency of a potent cod liver oil used as a standard.

Actions and Uses.—McKesson's vitamin concentrate of cod liver oil possesses properties similar to those of cod liver oil so far as these depend on the fat soluble vitamin content of the latter.

Dosage.—From 3 to 6 drops three times daily. A glass dropper is included with the market package, designed to deliver one minim per drop.

Manufactured by McKesson & Robbins, Inc., Bridgeport, Conn. U. S. patent No. 1,690,091 (Oct. 30, 1928; expires 1945). No U. S. trademark.

The vitamin A potency of McKesson's vitamin concentrate of cod liver oil is determined by the method of the U. S. Pharmacopeia: when assayed by this method the product is required to have 5,500 vitamin A units per gram. The vitamin D potency is determined by comparison with a potent cod liver oil containing in each 0.75 Gm. 1 rat unit of vitamin D, the rat unit being defined as that amount of vitamin D which, when uniformly distributed into a standard vitamin D deficient diet—ration 2965, *J. Biol. Chem.* **64**: 263, 1925—will produce in the metaphyses of the distal ends of the radii and ulnae of standard rachitic rats a narrow and continuous line of calcium deposits: when assayed by this method the product is required to have 116 vitamin D units per gram.

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[1] The following appeared on a sticker pasted on the trade package:
"Formerly known as OXYDOL
Name changed to
ALBUTESTA
Made by
Menley & James, Ltd., 70 West 40th St., New York."

[2] Roch Pharmaceut. Centralbl. **30**: 549, 1889.

[3] MacWilliam, J. A. Brit. M. Jour. **1**: 837, 1891; ibid. **1**: 115, 1892.

[4] Witthaus, R. A.: The Medical Student's Manual of Chemistry, Ed. 6, 1906, p. 737.

[5] Wood, F. C. Chemical and Microscopical Diagnosis, ed. 3, 1911, p. 501.

[6] Folin, Otto Laboratory of Biological Chemistry, New York, D. Appleton & Co.

[7] Exton, W. G. A Simple and Rapid Test for Albumin and Other Urinary Proteins J. A. M. A. **80**: 529 (Feb. 24) 1923; J. Lab. & Clin. Med. **10**: 722 (June) 1925.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 1, 1930

RECENT STUDIES IN PERNICIOUS ANEMIA

The greatly accentuated interest that has been displayed in medical circles within the last few years toward the problems of the anemias, and particularly toward pernicious anemia, has brought the blood cells into renewed prominence. Attention has been focused notably on the reticulocytes, the primitive types of blood cells that are an index of the response of the hematopoietic tissue of the bone marrow. It has been asserted that the fundamental defect in hematopoiesis during a relapse in pernicious anemia is due to the inability of the primitive red blood cells of bone marrow to differentiate normally into the adult state. When the regenerative activity of the bone marrow becomes restricted, the numbers of red blood cells in the peripheral blood decrease, and many of those present are abnormal. The liver, kidneys and stomach contain a substance that appears to stimulate the maturation of the primitive red blood cells and consequently to have a therapeutic action in pernicious anemia. A noticeable response signifies the onset of a satisfactory remission.

Recent investigations in two laboratories particularly devoted to the problems of pernicious anemia—namely, the Thomas Henry Simpson Memorial Institute for Medical Research, University of Michigan, Ann Arbor, and the Thorndike Memorial Laboratory of the Boston City Hospital—throw new light on the probable life of the reticulocytes of the blood. Heath and Daland[1] of Boston have followed the changes in these young (rather than degenerative) forms of the adult red blood cell in vitro at 37 C. and in the pleural cavity of animals under conditions resembling to some extent those that are found in the natural circulating medium. The reticulocytes exist thus for from one to five days. They remain for a much longer time when kept in the icebox or at room temperature. The changes that they undergo presumably represent maturation rather than destruction. That the reticulocytes lose their reticular substance and become adult erythrocytes is shown by the fact that the total number of red cells in the incubated specimens of blood does not diminish as the reticulocytes disappear. Evidence is presented by Heath and Daland to show that this must be the case in the blood stream, at least of patients with pernicious anemia at the time of the reticulocyte response following liver therapy.

The Boston investigators remark that whether the maturation of reticulocytes in the blood stream is the same as the maturation that takes place normally in great part in the bone marrow is difficult to determine. A few reticulocytes are found in the circulation in health, and at birth considerable numbers are often present. Heath and Daland have also approached the question of the disposal of the basophilic substance that has disappeared from the young cell in the course of its maturation. It is probable, they believe, that the basophilic substance diminishes gradually in amount as the cell reaches maturity. The observation of the increase of granules in erythrocytes with the decrease of reticulocytes suggests that this is a normal occurrence in the maturation of reticulocytes. The consumption of oxygen by the reticulocytes leads to the possibility of the disposal of the basophilic substance by normal catabolic processes. In studies at Ann Arbor[2] it was estimated that from two to four days is required for the differentiation of reticulocytes in the blood into mature erythrocytes. According to Riddle[2] the rate at which reticulocytes are liberated from the bone marrow into the blood appears to be a factor of importance which influences the rate and magnitude and velocity of the reticulocyte response. The rate of the liberation of the reticulocytes into the blood seems to be proportional to the rate at which they are formed from the more primitive red blood cells within the bone marrow and to the numbers of reticulocytes being formed there. The various students of pernicious anemia agree that, aside from the presence of inhibiting complications in patients with pernicious anemia, the two principal factors that regulate the reticulocyte response to liver therapy are the condition of the hematopoietic tissue of the bone marrow before treatment and the amount of the active principle contained in liver used in treatment.

Indication of some of the metabolic changes incident to blood regeneration has been supplied by Riddle and Sturgis.[3] Endogenous uric acid is manufactured and excreted in large quantities during the period of the reticulocyte response. The amount excreted in excess of the normal excretion is proportional to the increase in the numbers of red blood cells in the blood. It appears that, on the average, with the increase of a million red blood cells per cubic millimeter of blood approximately 10 Gm. of endogenous uric acid is excreted in the urine. The destruction of normoblast nuclei appears to be the source of this endogenous uric acid, and it seems likely, we are told, that the uric acid of endogenous origin normally excreted in the urine is derived principally from this source. Perhaps the endogenous uric acid output will become a reasonably reliable biochemical index of blood production during early remission. The rise in concentration of uric acid of endogenous origin in the blood and its excretion in increased amounts in the urine apparently have the same significance as the increase in the numbers of reticulocytes in the blood, and, according to Riddle, can be detected earlier, as changes in the endogenous uric acid metabolism usually precede similar changes in the reticulocyte concentration in the blood by one or two days.

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[1] Heath, C. W., and Daland, Geneva A.: The Life of Reticulocytes, Arch. Int. Med. 46: 532 (Sept.) 1930.

[2] Riddle, M. C.: Pernicious Anemia, Arch. Int. Med. 46: 417 (Sept.) 1930.

[3] Riddle, M. C., and Sturgis, C. C.: The Endogenous Uric Acid Metabolism in Pernicious Anemia, J. Clin. Investigation 7: 498, 1929. Riddle, M. C.: The Endogenous Uric Acid Metabolism in Pernicious Anemia, ibid. 8: 69, 1929.

It is generally conceded that iron therapy is illogical in pernicious anemia. Iron is stored in the body despite the anemia. According to Riecker [4] there is present in blood serum a partly diffusible iron compound the estimation of which may be used to determine the presence and degree of iron starvation in disease and likewise the effect of iron medication. The amount of serum iron is increased in hemolytic diseases of the blood and decreased in the presence of long continued hemorrhage or a dietary deficiency of iron. In pernicious anemia, the level of the serum iron usually is higher than normal but becomes normal during remissions in the disease.

COFFEY-HUMBER TREATMENT FOR CANCER

Following the subsidence of the first flare of publicity, during which sufficient evidence was developed to indicate that the Coffey-Humber method of treating cancer is in no sense of the word "a cure" and that even its efficiency in treatment is exceedingly doubtful, the medical profession settled down to await the careful trial over a long period of time that the discoverers of the method now seem to be anxious to make. This, of course, is necessary for the final decision. Late in August Drs. Coffey and Humber [5] read before the Pacific Association of Railway Surgeons an extensive paper regarding their method. They announce that they have had under their control from January 6 to August some 2,600 patients, and that more than double that number were turned away because not supplied with suitable credentials from their physicians. They state again that they have never made any claim for cure of cancer but are conducting research studies on malignant growths of all types with their special extract of the suprarenal. They have secured a patent to control the manufacture of their product and to prevent its exploitation by any commercial group. Therefore, they now provide a description of the technic by which the extract is prepared. Clinics have been established in San Francisco, Los Angeles and Long Beach. In the period of six months during which the treatment has been used, 13.5 per cent of the patients have died, about as many as would have died without the treatment. The authors are convinced that the product has a vasodilator action. They feel that the pain in cancer is due to vascular constriction and that because of the opposite effect of the extract it has the ability to subdue pain. They are convinced that this effect is not psychologic. According to their tabulated data based on questionnaires sent to 672 patients, 71.5 per cent had pain relieved, 10.3 per cent had never had any pain, 12.8 per cent were not relieved, and 5 per cent were doubtful. This seems to be the most that can be said for the treatment, and the evidence might certainly be better controlled. To continue their research, they have developed a foundation for its promotion. The discussion of the paper did not bring out any points particularly new regarding the method.

In the meantime the resolution adopted by the California Medical Association, apparently endorsing the scientific research and the promotional methods of the investigators, has disturbed a number of the members of that association. They prepared a protest for publication in *California and Western Medicine*, which that periodical has refused to publish. Hence these leading members of the organization are circulating their complaint in mimeographed form, protesting the passage of the resolution, deprecating the nature of the introduction of the method and the sensational publicity, doubting the value of the Coffey-Humber method, and condemning the action of the society in refusing to publish their disclaimer. The controversy is another proof of the danger of attempting to control scientific judgments by political or *viva voce* methods.

Another evidence of the liveliness of this issue on the Pacific Coast is the fact that the Portland, Ore., City and County Medical Society has been compelled to make a decision in response to an offer by the chamber of commerce of Portland to establish a clinic for the investigation of the Coffey-Humber method in that city. The president of the society was authorized to inform the chamber of commerce that it was the opinion of the society that experimentation in Oregon with this method, as with all other methods, should be under the immediate supervision of the University of Oregon Medical School and that a clinic established under such auspices would be given every assistance by the City and County Medical Society. The letter from Dr. Frederick A. Kiehle to the chamber of commerce concludes: "If, however, the recommendation of the council of the City and County Medical Society is not adopted and if an independent clinic is established for the exclusive administration of the Coffey-Humber serum, this council, while unable to give it direct support or encouragement, will nevertheless bespeak for it from the medical profession an attitude of open-minded and friendly interest."

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[4] Riecker, H. H.: Iron Metabolism in Pernicious and in Secondary Anemia, Arch. Int. Med. **46**: 458 (Sept.) 1930.

[5] Coffey, W. B., and Humber, J. D.: Extract of Adrenal Cortex Substance, California & West. Med. **33**: 640 (Sept.) 1930.

The history of investigations of new methods for the treatment of cancer is marked, as every physician knows, by the wreckage of dozens of scientific reputations, by the bodies of patients who choose to live or probably to die under experimental methods rather than to take their chance for prolongation of life under the old ones, and by bitter although sincere controversy among scientific men. Such conditions establish again the importance of provision within organized medicine for careful study and judgment of new methods before they are given circulation to the medical profession or to the public. Had the proponents of the Coffey-Humber method seen fit from the first to follow established custom in the introduction of their technic and their results, had they consulted the Council on Pharmacy and Chemistry as to the proper method of introducing a new proprietary, they might have avoided all the acrimony, the criticism, and certainly all the notoriety that has been their lot.

THREE HUNDRED YEARS OF THE CINCHONAS IN MEDICINE

Few drugs that are employed by the physician of today have a history of therapeutic usefulness that reaches back through the centuries. This medical dignity can be claimed proudly by quinine and its companion alkaloids of the cinchona group. The barks of various species of *Cinchona* and *Remijia* (*Cuprea*) contain a considerable number of related substances, among which twenty or more have been isolated and described. They seem to resemble one another in their chemical and pharmacologic properties. The best known representatives are the alkaloids quinine, quinidine, cinchonine and cinchonidine. To thousands of persons quinine has become a household word rather than a scientific curiosity. Generations of physicians have depended on quinine or products that contain it for help in the management of disease.

The cinchonas are natives of western South America but are now cultivated in India and Java. The exact date of the introduction of the use of cinchona bark into medicine is somewhat uncertain. According to Cushny it seems questionable whether the virtues of the bark were known by the native Indians before the invasion of the Spanish. Its introduction into medicine dates from about 1630; hence an international celebration will be held at the Missouri Botanical Garden in St. Louis, October 31 and November 1, to commemorate the three hundredth anniversary of the discovery. Historical records in the possession of the Garden (Shaw's Garden) show that in 1630 Juan Lopez Canizares, Spanish corregidor of Loxa, was the first to demonstrate the use of the bark of the cinchona tree in treating malaria.

Quinine itself was isolated more than a century ago by Caventon and Pelletier[1] shortly before the first U. S. Pharmacopeia was published and at the time when the first steamship crossed the Atlantic. It has an old reputation as an antipyretic. Quinine is commonly described in textbooks as a protoplasmic poison; and it is alleged to produce its effects in the body because of this property, the action being strongest on undifferentiated protoplasm. The comparative safety in the use of the drug is indicated by the fact that it has never achieved any prominence in toxicology. Fatalities from quinine have been exceedingly few. Of course the excelling virtue of the alkaloid in modern medicine remains in its selective toxicity to undifferentiated protoplasm, notably to the plasmodia of malaria. There is some debate as to whether the action is direct or indirect. Quinine is part of the "standard" treatment for malaria. Osler said many years ago that the physician who at this day cannot treat malarial fever successfully with quinine should abandon the practice of medicine.

Current Comment

HORMONE AND CANCER

The effort to influence the growth of cancer by various organ extracts is being widely made at present.[1] Logically it might be profitable to inquire why such trials are being made since every pathologist sees cancer growing freely in those organs whose hormonic activity is high. Moreover, investigators have shown that tumors may be inoculated with ease in the testicle, spleen and brain of mice and rats and may be found as metastatic extensions in the more minute glands of the body. If cancer grows freely in the spleen or the suprarenal or the ovary, why hope to inhibit such growth by an extract made often by crude chemical processes which may alter more sensitive products? The frequency of microscopic metastases in the spleen of human beings seems to have escaped general recognition, perhaps because the most convincing monograph on the subject is in the Dutch language.[2] But one observation is worth many opinions and the fact that extracts, scarcely to be dignified in all cases by the term hormone, do not cause one type of transplanted rat tumor to regress, casts grave doubts on their cancericidal capacity. As this tumor, number 10, regresses spontaneously with considerable facility in many strains of albino rats, any lethal action should be apparent. Among the extracts tried were that from the ovarian follicle, the corpus luteum, three sorts from the spleen and eight suprarenal extracts, including that used on human beings by Drs. Coffey and Humber. Not one of all these products appreciably affected the incidence of regression or the rate of growth of the tumor. The statistical complications introduced by the occurrence of spontaneous recessions have been carefully eliminated. The work of Dr. Bischoff and his colleagues should be repeated with a tumor that does not spontaneously recede and, if the results are the same, should close the discussion on the possible therapeutic action of extracts from the group of organs tested.

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[1] Caventon and Pelletier: Ann. de chim. et phys. **15**: 289, 1820.

[1] Bischoff, Fritz; and Maxwell, L. C.: J. Pharmacol. & Exper. Therap. **40**: 97, 1930.

[2] Deelman, H. T.: Het metastatisch carcinoom van longen en milt in verband met de verspreiding van het carcinoom door het lichaam, Amsterdam, 1918.

THE PROTEIN REQUIREMENT OF THE PRESCHOOL CHILD

The fear of protein in nutrition is subsiding. It is becoming more evident, on the basis of actual experiment, that the body has large powers of adjustment—that it can manage successfully to tolerate diets rich or poor in the organic nutrients. One might expect this of a body that becomes acclimated to a high or a low tension of oxygen in the atmosphere. However, extremes of diet do not interest us in ordinary life as intensely as they do in war, famine and devastating illness. Nitrogen balance can be maintained in adults on a protein intake of about 40 Gm. a day, whereas Stefansson and the Eskimos can live almost exclusively on meat and fish. Of greater concern are the needs of the growing child, whose demands are far better defined than those of the average grown-up and whose opportunities for adequate nourishment largely depend on the selection made by his human guardians. The diet of childhood ought to be emancipated from the fads of the elders. Growth makes sober demands. Much attention has been devoted to the needs of infancy; but the preschool child is just beginning to become the object of serious concern by students of nutrition. In a recent report, Parsons[1] has concluded from his researches that a healthy child of the age group from 4 to 8 years can maintain a positive nitrogen balance on 0.5 Gm. of protein per pound, or 1.1 Gm. per kilogram. These are figures that set the limits for safety in child nutrition.

THE HEKTOEN PHENOMENON IN UNDULANT FEVER

Certain limitations in the diagnostic value of the Widal reaction are at times overlooked. It is of course generally recognized that agglutination of *Bacillus typhosus* is sometimes observed with the serums of healthy individuals who have previously received typhoid vaccine, and occasionally noted in normal individuals with no previous history of this vaccine or of typhoid. Many clinicians have assumed that in these widal-positive individuals decided fluctuations in Widal titer can be produced only by infection with *B. typhosus.* That quantitative fluctuations in specific agglutinins may be produced by other than homologous infections was demonstrated experimentally in 1917 by Hektoen.[2] Within the last few years the Hektoen phenomenon has been confirmed by numerous clinicians, the most recent confirmation being by Gilbert and Coleman[3] of the state department of health, Albany, N. Y. In their study of 150 cases of undulant fever, the Albany investigators recorded suggestive Widal reactions in 23 cases and definitely positive typhoid agglutination in 24 additional cases. Definite fluctuations in typhoid agglutination titer were observed during the course of this nontyphoid febrile infection. Fecal examinations were negative for micro-organisms of the enteric group. About a third of these Widal-positive patients had never had typhoid or typhoid vaccine. From these data Gilbert and Coleman conclude that positive typhoid agglutination reactions "may be encountered in specimens collected from patients during febrile diseases other than typhoid fever, even though the patients have never received typhoid vaccine nor to their knowledge had typhoid fever, and that a fluctuation of the agglutination titer, considered by some as definite evidence of typhoid fever, may occur in cases in which this infection is quite definitely excluded."

TULAREMIA CONTRACTED FROM COYOTES

In June, 1925, Garberson of Miles City, Mont., encountered a case of serologically confirmed tularemia in a man who had been bitten by a coyote puppy (*Canis lestes*). A typical indolent ulcer developed at the site of the coyote bite, accompanied by the axillary adenopathy characteristic of this disease. Careful investigation did not reveal any other probable source of infection. Parker[1] decided to investigate the susceptibility of the coyote to tularemia. Three young coyotes were fed with the tissues of guinea-pigs and Belgian rabbits just dead of tularemia. The coyotes died on the thirteenth, twenty-second and fifty-third day, respectively, after the infectious material was first fed. Emulsions of tissue of the dead coyotes were injected into guinea-pigs. The guinea-pigs died and necropsy revealed the typical spotted spleens and livers and enlarged caseous lymph nodes; *Bacterium tularense* was recovered in pure culture from the guinea-pig tissues. Injections of tissue suspensions of salivary gland tissue from two of the coyotes into guinea-pigs caused their death from tularemia; this discovery introduced the possibility of a new avenue for the transfer of the infection to man by the bite of a wild rodent or carnivore. More recently, Kunkel[2] has reported a case of typical ulceroglandular tularemia in a man who had killed and skinned an adult coyote. Just prior to the disposition of the carcass the patient cut his left index finger with an ax. The primary lesion developed at the site of the cut. There were no other animal contacts before the development of the illness. A blood specimen collected nineteen days after the onset of illness was submitted to the Hygienic Laboratory of the United States Public Health Service at Washington, where the serum was found to agglutinate *Bacterium tularense* in all dilutions to 1 : 1,280, thus confirming the clinical diagnosis of tularemia. While the wild rabbit constitutes the important reservoir of infection for other animals and man, recent reports of new animal hosts and transmitters (woodchuck, opossum, muskrat, European water rat, sheep and quail) and new insect vectors (wood tick of California, *Dermacentor occidentalis* Newmann) indicate the ever-widening spread of the infection to other forms of animal and insect life. This situation is almost certain to result in the perpetuation of the disease among lower animal forms and thus increase the possibilities for the development of the infection in human beings.

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[1] Parsons, J. P.: Nitrogen Metabolism of Children, Am J. Dis. Child. **39**: 1221 (June) 1930.

[2] Hektoen, Ludwig: Precipitin Production in Allergic Rabbits, J. Infect. Dis. **21**: 279 (Sept.) 1917.

[3] Gilbert, Ruth; and Coleman, M. B.: Agglutination of Typhoid Bacilli in Serums of Patients Having Unrelated Infections, J. Infect Dis. **46**: 311 (April) 1930.

[1] Parker, R. R., and Francis, E.: The Susceptibility of the Coyote (Canis Lestes) to Tularemia, Pub Health Rep. **41**: 1407 (July 9) 1926.

[2] Kunkel, G. M.: Report of Case of Tularemia Contracted from a Coyote (Canis Lestes) in New Mexico, Pub Health Rep. **45**: [illegible] (Feb. 28) 1930.

Association News

THE PHILADELPHIA SESSION

Dates for Annual Session

The Eighty-Second Annual Session of the American Medical Association will be held in Philadelphia, June 8 to 12, 1931. It was first thought that the session could be held in May but, because of conditions affecting the buildings to be used for exhibits and section meeting places, it was necessary to select June 8 to 12.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:15 on Tuesday, and 10 a. m. on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

November 3.	Protecting the Surface.
November 4.	Health on Display.
November 8.	Constipation and Colitis.

Five Minute Health Talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

November 3.	A Hard Taskmaster.
November 4.	Too Much Pity.
November 5.	The Art of Accepting Affliction.
November 6.	Hope for the Handicapped.
November 7.	Shattering the Shingles Superstition.
November 8.	Tempests That Trail the Troublesome Tonsil.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Gridiron Banquet.—Three hundred members of Jefferson County Medical Society held a gridiron banquet, October 6, which featured comic solutions of medical problems, a mirth provoking meeting of a board of censors, imitating Birmingham physicians, and a consultation of seven surgeons on a Sunday morning tour of hospitals. Dr. James R. Garber, Birmingham, presided and outlined the use of medical terms as insurance against any serious business entering the meeting.

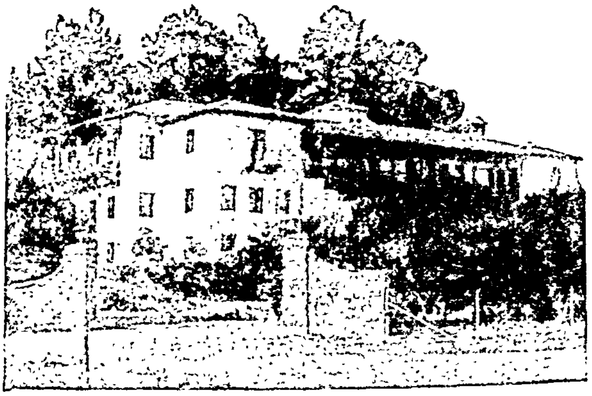
ARKANSAS

Society News.—Dr. Richard S. Weiss, St. Louis, addressed the Tenth Councilor District Medical Society at Fort Smith, September 16, on "Drug Eruptions."——The Mississippi County Medical Society was addressed, September 9, by Drs. Lucius Carl Sanders and Thomas D. Moore, both of Memphis, on cancer of the colon and nephritis, respectively.

CALIFORNIA

Society News.—The Pasteur Society of Central California was addressed, September 24, by Dr. Alfred C. Reed, San Francisco, on animal parasites of man, and Karl F. Meyer, Ph.D., San Francisco, on trichinosis.——The Contra Costa Medical Society was addressed, September 11, at Richmond by Dr. John W. Bumgarner, Richmond, on industrial problems in medical practice, and Dr. Leopold H. Fraser, Richmond, "Fractures Involving Joints."——"Early Respiratory Complications Following Operation" was the subject of Dr. Harold Brunn, San Francisco, before the Fresno County Medical Society, September 9.——Among others, Drs. Thomas C. O'Connor and Robert A. Peers, Colfax, addressed the San Joaquin County Medical Society, September 4, on "Importance of History Taking" and "What to Tell the Tuberculous Patient," respectively.——The Santa Barbara County Medical Society was addressed, September 8, by Dr. Rutherford B. H. Gradwohl, St. Louis, on "Schilling Blood Methods," and Howard S. Duff, D.D.S., Santa Barbara, "Pyorrhea in Its Relation to Systemic Diseases."

Another Metabolic Clinic.—The new Grace Deere Velie Metabolic Clinic at Carmel was opened to the public, August 10, for the investigation of metabolism and the study and treatment of patients suffering from metabolic diseases. While it will not be conducted for profit, any income from the care of patients is expected to defray part of the operating expenses. The clinic was made possible by a bequest of $750,000, of which $250,000 has been expended on the building and equipment. The capacity is twenty-five beds in private rooms. There is a routine clinical laboratory and research laboratories. The initial staff consists of Dr. Rudolph A. Kocher, Paul B. Hartley, Elmer Messner, Ph.D., and Drs. Frederick H. Rodenbaugh and Irving S. Ingber, roentgenologists.



DISTRICT OF COLUMBIA

High Tuberculosis Death Rate.—The city of Washington still has a death rate of 92 persons per hundred thousand of population from tuberculosis. The general average death rate from the disease throughout the country is 70 persons per hundred thousand of population. It is reported that Washington's relatively high death rate is due in part to the higher tuberculosis death rate of its colored population. In 1923 there were 226 deaths per hundred thousand among the colored as compared with 51 per hundred thousand for the white population.

ILLINOIS

Cleveland Program at Quincy.—The fifth annual all-day clinical meeting of the Adams County Medical Society will be held at Quincy, November 17. Dr. George W. Crile, Cleveland, will speak on "Clinical Analysis of 21,135 Operations on the Thyroid Gland with Special Relation to End-Results"; "The Nature and Treatment of Peptic Ulcer," and "Management of Patients Seriously Sick"; Dr. Russell L. Haden, Cleveland Heights, Ohio, "Types and Treatment of Rheumatism"; "Differentiation and Treatment of the Anemias" and "Dental Infection and Systemic Diseases," and Dr. William V. Mullin, Cleveland, "Management of Chronic Diseases of Nasal Sinuses in Relation to Their Effects on Systemic Disease," "Bronchial Asthma" and "The Salivary Glands." Physicians are urged to attend; there is no registration fee.

INDIANA

Society News.—Dr. Robert M. Moore, Indianapolis, addressed the Elkhart County Medical Society, October 2, on "Coronary Occlusion—Some Clinical Observations."——The Third District Medical Society was addressed at New Albany, October 8, by Drs. Emmet F. Horine, Louisville, Ky., on "The Mechanism of the Heart"; Joseph R. Dillinger, French Lick, on "Tonsillitis and Some of Its Sequelae," and Parvin M. Davis, New Albany, on "Intra-Abdominal Abscesses."——The Seventh District Medical Society, Martinsville, was addressed at Indianapolis, October 28, by Drs. Harry E. Mock, Chicago, on "Skull Fractures" and "Joint Fractures," and

Martin H. Fischer, Cincinnati, "Principles of Feeding in Gastric Disease" and "Edema and Albuminuria"; Dr. E. Starr Judd, Rochester, Minn., addressed the evening session on "Clinical Manifestations and Treatment of Peptic Ulcer."——The Indianapolis Medical Society was addressed, October 21, by Drs. Murray N. Hadley and Lyman Pearson, both of Indianapolis, on "Cause of Death in Operative Treatment of Gallbladder Disease" and "Cirrhosis of the Liver," respectively.

Scientific and Medical Displays at State Meeting.—Among the scientific and medical displays at the recent annual meeting of the Indiana State Medical Association at Fort Wayne was a study of the state-wide distribution of physicians prepared by the Indiana University Medical Center. Maps of the state were made showing graphically the variations in ratio of total population to the total number of physicians, the average age of physicians, where the young doctors have settled in the last ten years, and where medical students are coming from. Other maps concerned hospitals, gain or loss in population, road conditions and telephone facilities. The survey was conducted to ascertain the medical needs of the state and to aid young physicians in choosing locations. The work was done under the direction of Dr. Thurman B. Rice. Other displays showed experimental methods and types of apparatus used in pharmacology, necropsy specimens illustrating common disease conditions; motion pictures showing types of orthopedic conditions seen at Riley Hospital; lantern slides and surgical specimens regarding research problems conducted under the Eli Lilly Research Fellowship, and motion pictures of cases of meningitis.

KENTUCKY

Reporters to Cooperate with Medical Journals.—At the recent session of the Kentucky State Medical Association at Bowling Green, the council decided to request the county secretaries to act as reporters for news items for the *Kentucky State Medical Journal* and also of THE JOURNAL.

Society News.—The Christian County Medical Society was addressed, *September 23, by Drs. Nathaniel S. Shofner and* Jack Witherspoon, both of Nashville, on "Diseases of the Thyroid" and "Duodenal Ulcers," respectively.——The Daviess County Medical Society was addressed, September 23, among others, by Drs. William L. Tyler and Joseph R. McGary, Owensboro, on "The Cardiorenal Vascular Syndrome" and "Essential Hypertension," respectively.——Dr. Arthur G. Quinn, Memphis, Tenn., among others, addressed the Four County Medical Society at Fulton, September 30, on "Diseases of the Thymus Gland in Infants."

MARYLAND

Personal.—Dr. William H. Welch, professor of the history of medicine, Johns Hopkins University School of Medicine, Baltimore, received the honorary degree of doctor of laws at the sixty-sixth convention of the University of the State of New York, October 16.

Society News.—The Baltimore City Medical Society was addressed, October 17, by Drs. Gordon M. Holmes, London, England, visiting neurologist at Johns Hopkins Medical School; *Max Kahn, Baltimore, "Pre- and Postoperative X-Ray Treat*ment of Cancer of the Breast"; John A. Askin, Baltimore, "Case of Congenital Anorectal Stricture," and Leo Brady, Baltimore, "Extraperitoneal Pelvic Conditions in Women."

Dr. Weinberg Gives DeLamar Lectures.—The first of the 1930-1931 DeLamar lectures in hygiene, arranged annually by the Johns Hopkins University School of Hygenie and Public Health, were given, October 21-22, by Dr. M. Weinberg of the Pasteur Institute, Paris, on "Rôle of Anaerobic Bacteria in Human Pathology" and "Serotherapy of Medical and Surgical Infections Caused by Anaerobic Bacteria." These lectures are supported from the fund bequeathed to the medical school by Joseph R. DeLamar, in accordance with his will "to give to the people of the United States generally the benefits of increased knowledge concerning the prevention of sickness and disease and also concerning the conservation of health by proper food and diet."

MASSACHUSETTS

Annual Meeting of New England Surgical Society.—The thirteenth annual meeting of the New England Surgical Society was held at Boston, September 29-30. Among others, papers were delivered by Drs. George A. Leland, Jr., on "Some Aspects of the Treatment of Cancer of the Cervix"; George G. Smith, "Palliative Operations for Advanced Cancer of the Bladder"; Robert B. Greenough and Joseph C. Aub, "The Lead Treatment of Cancer," and Henry Jackson, Jr., "Biological Aspects of Cancer." Several clinics were held at the Boston City, Massachusetts General and Peter Bent Brigham hospitals.

Dinner to Dr. Benedict.—Francis G. Benedict, Ph.D., director, since 1907, of the Nutrition Laboratory of the Carnegie Institution of Washington, Boston, was guest of honor at a complimentary dinner given, October 3, by his associates on the occasion of his sixtieth birthday. George H. Parker, S.D., professor of zoology, Harvard University, presided at the dinner. Among the speakers were Drs. Eugene F. Du Bois, medical director, Russell Sage Institute of Pathology; Elliot P. Joslin, clinical professor of medicine, Harvard Medical School, and George W. Crile, Cleveland; Allan Winter Rowe, Ph.D., director of research at the Evans Memorial, presented Dr. Benedict with a handsome volume containing congratulatory letters from scientists all over the world.

MICHIGAN

Dr. Burr Honored.—The honorary degree of master of *arts was conferred on Colonel B. Burr, Flint, at the eighty*-second opening assembly of the University of Michigan Medical School, Ann Arbor, by Alexander G. Ruthven, president of the university. Dr. Burr, a retired physician and psychiatrist, former superintendent of the Eastern Michigan Asylum, Pontiac, is the author of the recent two volume "Medical History of Michigan." Dr. Burr was formerly a member of the faculty and historian of the university.

Society News.—The Wayne County Medical Society was addressed, October 7, by Dr. Clarence D. Selby, Toledo, Ohio, on "The Diagnosis of Injuries."——The Detroit Pediatric Society was addressed, October 1, by Drs. William S. O'Donnell on "Treatment of Edema in Tuberculous Nephritis."——The Calhoun County Medical Society was addressed, October 7, by Mason Sinai, D.P.H., Ann Arbor, on "Trends in Medical Economics."——The Grand Traverse-Leelanau County Medical Society was addressed, August 12, by Dr. Cyrus C. Sturgis, Ann Arbor, on "Treatment of Pernicious Anemia."——Dr. Alfred L. Arnold, Jr., Owosso, exhibited a film entitled "Treatment of Normal Breech Presentation" before the Shiawassee County Medical Society at its *September meeting.*——The fifth annual clinic of the Highland Park Physicians' Club will be held, December 4, at the Highland Park General Hospital; among the participants will be Drs. Dean D. Lewis, Baltimore; Ernest E. Irons, Chicago; Charles S. White, Washington, D. C., and Alexander Primrose, Toronto, Ontario.——The first of the series of graduate courses in medicine and surgery to be conducted by the Wayne County Medical Society was given by Drs. Elisha S. Gurdjian, September 26, on "Head Injuries" (surgery); Frank S. Perkins, September 30, "Dietotherapy" (medicine); Arthur E. Schiller, October 3, "Tumors and Ulcers of Face" (surgery); Richard M. McKean, October 7, "Hypertension and Nephritis" (medicine); William E. Johnston, October 10, "Thyroid" (surgery); beginning October 14, the course was given by Dr. Don W. McLean on "Diabetes" (medicine); October 17, Claire L. Straith, "Plastic Surgery" (surgery); October 21, Daniel P. Foster, "Obesity and Other Nutritional Problems" (medicine).——Dr. Joseph T. Wearn, Cleveland, addressed the medical section of the Wayne County Medical Society, October 14, on "How the Heart Grows Old."——The medical reserve corps group courses begun, *October 6, will be continued the first and third* Mondays of each month until spring. The schedule includes the subjects of medical department administration, elementary military sanitation, service with medical detachments, medical tactics and medical service of the field force. These will be offered as basic and advancement courses. Further information may be obtained from Major Harrison W. Stuckey, medical executive, 438 Book Tower.

MINNESOTA

Unlicensed Practitioner Sentenced.—J. E. Dufort, Northome, was recently given a suspended sentence of one year in the county jail and required to pay a fine of $100 for practicing medicine without a license. Dufort has been located at Northome for twenty years and has never possessed a license to practice medicine anywhere. He was arrested in 1928 charged with violating the basic science law, and was arrested again in June, 1930 (THE JOURNAL, Jan. 19, 1929, p. 237).

Society News.—The Minnesota Academy of Medicine was addressed, October 8, by Dr. John Charnley McKinley, Minneapolis, *on "Familial Diffuse Sclerosis of the Brain,"* and *by* Drs. Frederic E. B. Foley and Arnold Schwyzer, St. Paul, on "An Improved Pelvio-Ureteroplastic Operation for Hydronephrosis."——Dr. Solon Marx White, Minneapolis, addressed the Interurban Academy of Medicine at Duluth recently on "Arthritis Deformans."——"Serum Reactions" was the subject of Dr. Reuben A. Johnson, Minneapolis, before the Scott-Carver County Medical Society recently.——Dr. George E.

Fahr, Minneapolis, began a series of talks on cardiology before the Park Region District and County Medical Society, October 8, at Alexandria, on "Management of the Ambulant Cardiac Patient."——"Sciatica" was the subject of a paper read by Dr. Andrew P. MacKinnon, Winnipeg, Manit., among others, before the Red River Valley Medical Society at Warren, October 9.——Dr. Arthur I. Arneson, Starbuck, addressed the West Central Minnesota Medical Society at Morris, October 8, on blood chemistry, and Dr. Charles L. Scofield, Benson, on the relation of physicians to the state board of health.

NEBRASKA

Society News.—Dr. John S. Musser, New Orleans, addressed the Omaha-Douglas County Medical Society, October 20, on "Oral Cavity in Certain Systemic Diseases"; the society was addressed, October 28, by Drs. Maurice C. Hennessy, Council Bluffs, on "County Health Situation in Council Bluffs"; Alfred J. Brown, Omaha, "Influence of Cervical Paravertebral Anesthesia on the Pulse Rate During Operations on the Toxic Thyroid Gland," and James T. Maxwell, "Ethyl Chloride as a General Anesthetic."——Dr. John L. Morse, Boston, addressed the student body and faculty at the University of Nebraska Medical College, October 9, on "Chronic Indigestion in Children."

NEW YORK

Trichinosis Made Reportable.—The public health council, September 17, amended the sanitary code making trichinosis one on the list of communicable diseases to take effect October 1. Official attention was called to the fact that undulant fever and tularemia are also reportable.

Personal.—Dr. Lloyd H. Ziegler recently accepted the professorship of neurology and psychiatry at the Albany Medical College, having resigned from the staff of the Mayo Clinic; Dr. Ziegler will also be neuropsychiatrist-in-chief of the Albany Hospital.——Dr. William P. Brown, medical director of the Pennsylvania Tuberculosis Society, has been appointed superintendent of the Pawling Sanatorium, Wynantskill, the tuberculosis hospital for Rensselaer County.

Septic Sore Throat in Kingston.—An outbreak of septic sore throat in Kingston which began the last week in August resulted in 151 known cases and 6 deaths. It was estimated that the epidemic involved 700 cases. Investigations of eighteen dairy farms, begun September 5, revealed that the bulk of the cases were on the route of two dealers who purchased raw milk from one dairy in which two milkers were found to have had sore throat and the owner to have previously had sore throat from which cultures showed the presence of hemolytic streptococci. Up to September 22, 98 families, comprising 340 individuals, were visited on one route, and 117 cases were discovered. On the second route, 99 families, comprising 297 individuals, were visited, and 34 cases were discovered. Examinations of milk from an injured cow in the herd of the implicated dairy revealed the presence of hemolytic streptococci which were from a morphologic and cultural point of view identical with the organisms secured from the patients' throat. The epidemic began to subside immediately after the infected cow was excluded from the herd.

Society News.—The fourth annual conference of secretaries of county medical societies, held at Albany, September 9, with representatives of twenty-one counties present, considered the policy of cooperation between physicians and state health officers on the matters of public health.——The Medical Society of the County of Nassau was addressed, September 30, at Hempstead by Dr. Richard Kovacs, New York, on diathermy.——The Bronx County Medical Society was addressed, October 15, by Drs. Joseph H. Gettinger, New York, and George F. Chandler, Kingston, on "Mass Production and Wholesale Distribution in Medicine" and "Thoughts on Medical Economics."——The twenty-fourth annual meeting of the Seventh District Branch Medical Society of the state of New York was held at Penn Yan, September 24. Among others, talks were made by Drs. John L. Eckel, Buffalo, on "Anterior Poliomyelitis"; William Wayne Babcock, "Resuscitation," and James E. Talley, Philadelphia, "Care of the Heart in Certain Infections."——The Medical Society of the County of Kings was addressed, October 21, by Drs. William H. Ross, Brentwood, president of the Medical Society of the State of New York, on present day trends in medical public relationships; James E. Sadlier, Poughkeepsie, "Need of Medical Leadership in Public Health Relations," and John A. Card, Poughkeepsie, "Malpractice Insurance."——The Brooklyn Society of Internal Medicine was addressed, October 24, by Dr. Richard Kovacs on "Present Day Use of Hydrotherapy, Including American Spa Methods"; Dr. Walter P. Anderton delivered a medical travelogue on "Some French and English Spas."——A symposium on cardiology was conducted by the East New York Medical Society, October 27.——Dr. Fred Maurice McPhedran, Philadelphia, addressed a joint meeting of the Queensboro Tuberculosis and Health Association and the Medical Society of the County of Queens, September 23, at Bayside on "Some Aspects of the Prevention of Tuberculosis in Children."——Dr. Walter L. Niles, New York, addressed the Suffolk County Medical Society, October 30, at Riverhead on "Digitalis Therapy in Pneumonia."——Dr. Walter J. Highman, New York, addressed the Medical Society of the County of Albany, October 24, on "The Nature of Eczema."

New York City

Appointments at Cornell.—Dr. Herbert F. Traut, assistant in obstetrics, Johns Hopkins Medical School, Baltimore, has been appointed associate obstetrician of the New York Hospital and associate professor of obstetrics and gynecology in the Cornell University Medical College. Dr. Robert Gordon Douglas, instructor in obstetrics, Johns Hopkins Medical School, has been appointed assistant obstetrician of the New York Hospital and associate in obstetrics and gynecology in the medical college. These appointees are to assume active duty in the new plant, which is now under construction, under Dr. Henricus J. Stander who has been appointed obstetrician-in-chief of the New York Hospital and professor of obstetrics and gynecology in the medical college. Dr. Stander was formerly associate professor of obstetrics at Johns Hopkins.

Society Endorses Compensation Agreement. — The Comitia Minora of the Medical Society of the County of New York, October 13, endorsed an agreement with the compensation insurance carriers of the state. The society aims to get the carriers to recognize treatment of compensation claimants by qualified physicians without formal authorization from employers. The carriers aim to give the employee proper administration of the workmen's compensation law involving skilful medical and surgical care; prompt and proper completion of forms for prompt compensation pay, and that physicians' bills be reasonable and promptly forwarded to companies and not to the compensation commission and promptly paid. The carriers agreed to correct the erroneous opinion that they indiscriminately lift cases of injured employees from the care of competent family physicians of those employees. They agreed that reasonable charges for services of family physicians will be promptly paid. In the furtherance of these aims, the county society agreed to instruct members of the importance of proper treatment to bring the injured employee back to efficiency as soon as possible. The carrier is to be consulted when there is doubt of proper handling of any case. The society will arrange fee schedules with the carriers to which physicians must conform. All disputes will be decided on by an arbitration board representative of the physicians and carriers. The society members agreed to seek advice and abide by the decision of the carriers concerning consultations, roentgen examinations and other treatments beyond the ordinary, and will give at reasonable times carrier examinations of claimants except where the physician must act quickly in dire emergency. The society will schedule meetings to be addressed by specialists in industrial medicine and surgery and by qualified interpreters of the workmen's compensation law. The carriers agreed to furnish literature and other aid in instructing members of county medical societies concerning industrial medical and surgical fields and in regard to the detail of paper work necessary in the efficient administration of the compensation law.

OHIO

Hospital News.—The total expense of operating nineteen hospitals in Cleveland participating in the Community Fund for 1929 was $5,500,432, it is reported, of which $951,212 was paid from the Community Fund. The total of 69,820 patients were given 793,846 days of care.

Personal.—Dr. Carl H. Lenhart was recently added to the faculty of the School of Medicine of Western Reserve University, Cleveland, as professor of clinical surgery and as chief of the division of surgery of the City Hospital. Dr. Lenhart will retain his office as director of the surgical division of St. Luke's Hospital but will give half his time to the new position at City Hospital.

Conference on Adolescence. — The first conference on research on adolescence sponsored by Western Reserve University and the Brush Foundation was held, October 17-18, at Cleveland. A specially selected group was chosen to attend. The conference dealt with changes which take place in the child during the second decade including the relations between the development of the body and mind during adolescence, the effects of nutrition, and the endocrine glands on development, studies on adolescent behavior and the organization and development of personality. Among the speakers were Dr. Wingate Todd, on "Adolescence as a Practical Study"; Dr. Norman W. Ingalls, "Sex Features in Adolescence"; Elmer V. McCollum, Sc.D., Baltimore, "Nutritional Considerations in the Second Decade"; George E. Coghill, Ph.D., Philadelphia, "Anatomical Growth of the Nervous System in Relation to Behavior," and Frederic L. Wells, Ph.D., Boston, "The Ethics, Objectives and Practical Value of Psychometry."

TENNESSEE

Hospital News.—Nineteen Memphis physicians who specialized in diseases of the eye, ear, nose and throat recently organized a holding company known as the Meenath Corporation for the purpose of insuring the operation of the Memphis Eye, Ear, Nose and Throat Hospital. The name of the corporation is made up by combining the initials from the various words making up the name of the hospital. The incorporators have agreed to support the hospital with part of their work in order to carry on the good work of the institution. Free clinics will be continued for sufferers from the diseases of the eye, ear, nose and throat as in the past, and a special hay-fever clinic will be conducted on certain days. Any indigent patient of Memphis or vicinity may receive service at these clinics extended by the staff.

Appointments at Vanderbilt.—The following additions to the staff of Vanderbilt University School of Medicine, Nashville, were recently announced, it is reported:

Dr. Samuel M. Bloomstein, associate professor of clinical pediatrics.
Dr. Robert Boyd Bogle, associate professor of clinical dental surgery.
Walter N. Morgan, D.D.S., associate professor of clinical dental surgery.
Oren A. Oliver, D.D.S., associate professor of clinical dental surgery.
Dr. Richard Ashman, Ph.D., assistant professor of physiology.
Dr. Sam L. Clark, assistant professor of anatomy.
Dr. Harry T. Hillstrom, assistant professor of surgery in charge of radiology.

All classes of the school of medicine have their full quota enrolment, classes being limited to 50 for each class. There were 645 applications for admission to the school for the fall term, it is reported, with 601 of these for the freshman class, and 41 for advanced standing from other accredited medical schools, the total representing a 33 per cent increase over the number of applicants for admission last school year.

TEXAS

Personal.—Dr. John W. Burns, Cuero, was recently appointed a member of the state board of health to fill the vacancy created by the resignation of Dr. Joseph Gilbert, Austin; Dr. Gilbert resigned to become physician at the University of Texas, a position which he formerly held, it is reported.——Dr. George H. Spivey resigned, September 1, as director of the Winkler County Health Unit, Wink, to accept a similar position, it is reported, at Phoenix, Ariz.

University Faculty Changes.—The following changes, among others, in the faculty of the University of Texas School of Medicine, Galveston, have recently been announced:

Dr. Felix L. Butte, who has been on leave of absence in the Cleveland City Hospital for the last year, will return as associate professor of anatomy.
Dr. John V. Sessums, associate professor of anatomy.
Marion Fay, Ph.D., associate professor of biologic chemistry.
Dr. Harry L. Klotz, adjunct professor in department of pathology.
Dr. Charles H. Taft, New Haven, Conn., associate professor in department of pharmacology.
Dr. Robert Milo Moore, St. Louis, associate professor of experimental surgery.

In the department of biologic chemistry, Meyer Bodansky, Ph.D., will become the head of the laboratories of John Sealy Hospital but will retain a teaching connection with the school of medicine as professor of the newly created department of pathologic chemistry. Elective courses for juniors and seniors will be offered as soon as the course is organized.

Society News.—The Dallas County Medical Society conducted a symposium on goiter, September 11, the speakers being Drs. Paul H. Duff, Robert M. Barton and Walter E. Sistrunk, Jr., all of Dallas.——"Spinal Anesthesia" was the subject of Dr. Herschel F. Connally, Waco, before the Falls County Medical Society, September 8; Dr. Joel I. Collier, Marlin, presented a case of sinus infection.——The Harris County Medical Society was addressed, September 10, by Drs. George M. Brandau, Houston, on "Incidence of the Sickle Cell Trait in Industrial Workers," and Archie L. Mitchell and Byron P. York, Houston, "A Simple Method of Transfusing Infants and Children."——"Whole Blood Transfusion" was the subject of Dr. Julius T. Krueger, Lubbock, before the Lubbock-Crosby Counties Medical Society, September 9.——Dr. Conrad Frey, Melvin, spoke on "Myelogenous Leukemia" before the McCulloch County Medical Society; a second feature of the program was a round table discussion of medical problems, both scientific and economic.——The Potter County Medical Society was addressed, September 8, by Dr. Elisha A. Metzger, Amarillo, on "Injection Treatment of Varicose Veins of the Leg."——The Tom Green County Medical Society was addressed, September 1, at San Angelo, by Drs. Charles L. Martin, Dallas, on "Cancer of the Mouth and Neck"; Hugh Leslie Moore, Dallas, "Secondary Diarrhea in Infants," and D. D. Wall, San Angelo, "Rectal Anesthesia in Obstetrics."——Among others, Drs. Orman T. Kimbrough, Wichita Falls, and Ernest H. Bursey, Fort Worth, addressed the Thirteenth District Medical Society, September 9, at Wichita Falls, on "Conditions of Upper Urinary Tract Due to Adnexal Disease" and "Thrombopenic Purpura Hemorrhagica," respectively.

VIRGINIA

Society News.—The Southwestern Virginia Medical Society was addressed, September 23-24, among others, by Drs. James C. Motley, Abingdon, on "Relation Between General Medicine and Mental Hygiene," and John E. Gardner, Roanoke, "Acute Bichloride of Mercury Poisoning," with a case report.

Personal.—Dr. Fred J. Wampler, professor of preventive medicine at the Medical College of Virginia, Richmond, has been granted a leave of absence to serve as a member of a commission sponsored by the Institute of Social and Religious Research of New York City to make a study of missions in India.

University News.—Fundamental health services performed by the Medical College of Virginia through its hospitals and clinics increased from a total of 55,866 in 1928-1929 to 67,888 in 1929-1930. In addition to the health services rendered, the colleges last year gave instruction to 879 students in its four schools of medicine, dentistry, pharmacy and nursing.——Free dental work of white pupils of Richmond in public schools will be done during the session 1930-1931 at the Medical College of Virginia, for which it has appropriated $5,000. A graduate operator and supervisor is in charge of this clinic and three undergraduate students will do the work under his instruction.——An engraving of William Harvey was recently presented to the Medical College of Virginia by Dr. Joseph L. Miller, Thomas, W. Va.; it bears the date 1739 and was made by I. and P. Knapton, London. Dr. Miller recently presented to the Richmond Academy of Medicine a library dealing with the history of the medical profession. The library will be placed in the building soon to be erected and will be used jointly by the college and the academy for library purposes.

GENERAL

Increase of Meningitis.—According to the U. S. Public Health Service there has been a progressive increase in the number of cases of meningococcus during the past five years; 1,859 cases were reported for 1925 and 9,660 for 1929. Since March, 1930, the reported prevalence of the disease has been lower than it was in the corresponding months of 1925. In comparison with the prevalence of the disease over the world, an increase in the United States was noted between 1915-1917 but the number of cases did not rise noticeably in Europe until 1929. An outbreak of meningococcus meningitis early this year was noted in the Anglo-Egyptian Sudan, and also the French Protectorate of Morocco with a slight increase of incidence in Mexico.

Another Journal on Pathology.—Beginning January, 1931, the American Society of Clinical Pathologists will publish a bimonthly journal known as the *American Journal of Clinical Pathology*. This journal will publish original papers dealing with all phases of clinical pathology and closely related subjects. The editors will also make an effort to publish articles dealing with new methods and comparisons of old methods in the application of clinical pathology to medicine and surgery. Manuscripts should be sent to Dr. Thomas B. Magath, editor, Mayo Clinic, Rochester, Minn. The advisory editorial board consists of Drs. John A. Kolmer, Philadelphia; Arthur H. Sanford, Rochester, Minn.; Bowman C. Crowell, Chicago; Robert A. Keilty, Washington, D. C.; Frank W. Hartman, Detroit; Herbert Fox, Philadelphia; Kenneth M. Lynch, Charleston, S. C.; Stanley P. Reimann, Philadelphia; Walter S. Thomas, Clifton Springs, N. Y.; Robert A. Kilduffe, Atlantic City; Harry J. Corper, Denver, and C. S. Butler.

National Certification Board on Obstetrics and Gynecology.—The American Board of Obstetrics and Gynecology, composed of nine members and examiners, elected by the American Association of Obstetricians, Gynecologists and

Abdominal Surgeons, the American Gynecological Society, and the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, was formally organized in Niagara Falls, September 16. The board will grant certificates indicating proficiency and specialization in obstetrics or gynecology, or both, to those who comply with its requirements. The board is now prepared to receive applications from experienced and qualified obstetricians and gynecologists. This board has been in process of organization since 1927. It is hoped and expected that its certificate will have considerable weight in the minds of hospital trustees and other laymen as well as in many important medical circles whenever a question arises as to an individual's special ability in obstetrics and gynecology. Detailed information and application blanks may be secured from Dr. Paul Titus, secretary, 1015 Highland Building, Pittsburgh, Pa.

The National Institute of Health.—Plans for expansion of the new National Institute of Health, established by Congress in May, are under consideration by the U. S. Public Health Service. The institute has three divisions at present —pharmacology, chemistry, and pathology and bacteriology. According to a statement by Dr. Ralph C. Williams, assistant surgeon general, in a recent issue of the *United States Daily*, the addition of two new divisions, physiology and physics, are contemplated. It has been proposed that work in industrial hygiene will be developed probably under the division of chemistry to include the study of problems involved in the study of industrial problems, proper heating, light and ventilation, and industrial poisons in relation to health. It is also planned to erect a three story addition to each of the two present buildings and to construct two new buildings in order to provide more space for research workers and permit expansion of activities into new fields. The institute hopes later to have a farm near Washington where animals used in health research may be raised. It is intended to submit the full plan of extension to Congress, which, at its next session, will be requested to make available the $750,000 construction fund authorized under the law creating the institute.

Society News.—The Polish Medical and Dental Association of America at its annual meeting in Chicago, October 2-4, elected Dr. Kasimier G. Cieslak, Cleveland, president, and P. J. Wawrzynski, D.D.S., Lakewood, Ohio, secretary. Dr. Irving S. Cutter, dean, Northwestern University Medical School, Chicago, gave an address on "Poland's Contribution to American Hygiene and Sanitation."——At the forty-first annual meeting in Denver, October 14-16, of the Association of American Medical Colleges, the following officers were elected: President, Dr. Maurice H. Rees, Denver; vice president, Dr. Charles C. Bass, New Orleans, and secretary-treasurer, Dr. Fred C. Zapffe, 25 East Washington Street, Chicago (reelected). The next annual meeting will be held in New Orleans in 1931.——The Children's Hospital Association of America held its annual meeting at New Orleans, October 23; among the speakers were Drs. Charles C. Hedges, New York, and Laurence R. De Buys, New Orleans, whose subjects were "The Organization and Operation of a Pediatric Outpatient Department" and "Management of a Children's Service in a General Hospital," respectively.——The Central States Pediatric Society will hold its annual meeting, November 7-8, in Memphis; the society is composed of men doing pediatrics in the territory extending from Pittsburgh to Denver, inclusive, and all physicians in this region are cordially invited to attend. Among the speakers will be Drs. Maud Loeber, New Orleans, "Evaluation of Gastric Analyses and Stool Examination in a Series of Cases When No Other Pathology Has Been Found to Account for Anorexia, Loss of Weight and Capricious Appetite"; Edwin G. Schwarz, Fort Worth, Texas, "Is the Allergic Individual More Susceptible to Poliomyelitis?" Madison Hines Roberts, Atlanta, Ga., "A Study of Approximately Five Hundred New-Born Infants, Born of Syphilitic Mothers," and John A. McIntosh, Memphis, "The Relationship of Metazoal and Protozoal Infestation to Vitamin B Deficiency."——The National Society for the Prevention of Blindness has been conducting a series of lectures given to classes for training sight-saving class teachers at the Universities of Cincinnati and Chicago, Columbia University and the State Teachers' College at Buffalo with Dr. Benjamin Franklin Royer, medical director, in charge.

Southern Medical Association Meeting.—At the twenty-fourth annual meeting of the Southern Medical Association, Louisville, Ky., November 11-14, papers will be presented by Drs. Lucius E. Burch, Nashville, Tenn., on "Ephraim McDowell and Ovarian Surgery"; Surg. Gen. Hugh S. Cumming, U. S. Public Health Service, Washington, D. C., "Future Relations of the Profession to the Public"; E. Starr Judd, President-Elect, American Medical Association, Rochester, Minn., "Some of the Historical Points Connected with the Development of Surgery of the Biliary Tract"; Thomas Parran, Jr., state health commissioner of New York, Albany; Walter L. Treadway, Washington, D. C., "Relationship of Neuropsychiatry to the Field of Public Health"; Surg. Gen. Merritte W. Ireland, "Relation of Internal Medicine and Surgery"; Hugh Leslie Moore, Dallas, Texas, "A Clinical Observation in Nutritional Injuries"; George W. F. Rembert, Jr., Jackson, Miss., "Gastro-Enterology: An Important Phase in Diagnostic Procedure"; Ernest W. Goodpasture, Nashville, Tenn., "Cytotropism and Virus Infection of the Nervous System," illustrated; Robert Finley Gayle, Jr., Richmond, Va., "The Relationship between Neurology and General Medicine and Surgery"; John W. Pierson, Baltimore, "Some Bone Changes Associated with Diseases of the Hematopoietic System"; Jeffrey C. Michael, Houston, Texas, "Advisability of a Revision of Dermatologic Nomenclature"; John W. Turner, Atlanta, "Chronic Salpingitis"; the section on obstetrics will conduct a symposium on maternal welfare and the section on urology one on treatment of gonorrhea. During the same week other associations will meet as follows: Conference of City and County Health Officers of Kentucky; the sixteenth annual meeting of the Women Physicians of the Southern Medical Association; the third annual conference of medical work in connection with the Veterans' Pension Claims by the Medical Referee of the Bureau of Pensions and the Pension Examining Surgeons; the Southern States Association of Railway Surgeons; the National Malaria Committee and the Southern Association of Anesthesists and the Mid-Western Association of Anesthetists. Entertainment will include a golf tournament and trap shooting, with receptions and luncheons for visiting ladies.

Report of Children's Fund.—The report of the Children's Fund of Michigan for the first year, ended April 30, 1930, shows that a health demonstration in Menominee County introduced modern methods of sanitation, medical inspection of school children, preventive disease campaigns, and health education movements. Arrangements have been made to establish the Northern Michigan Child Clinic at Marquette, to be operated at St. Luke's Hospital with assistance from the University of Michigan. Two health units, each comprising four counties, were established with headquarters at Grayling and West Branch. The Orthodontia Clinic at the Children's Hospital of Michigan, Detroit, was remodeled, enlarged and granted funds. To give dental service in rural areas, dentists trained in public health service were sent to thirteen counties, where defects in 85 per cent of the children's mouths were found. The trustees decided to supply ten counties with nurses for a limited time to encourage residents to engage nurses from their own funds. Nurses were sent to three counties to give instruction in prenatal care. Two women physicians were engaged to spend a month in a county, giving lectures and demonstrations on phases of mother and child care. Funds were given to the Michigan State Medical Society to conduct graduate clinics for physicians practicing children's specialties. This program resulted in the inspection of 10,280 school children by nurses; 3,593 preventive treatments for diphtheria; 1,492 vaccinations against smallpox; 3,354 physical examinations by physicians, and 7,593 children inspected by dentists. Funds were supplied for research on dental caries at the University of Michigan on orthodontia and on juvenile delinquency at Detroit. The latter is one of three centers in Michigan established by the Institute of Human Relations of Yale University. Funds were given to aid in a survey of child dependence made by the Child Welfare League of America that it might shape its policies to avoid duplication and effort; 552 dependent children in northern Michigan were aided by appropriations by the Michigan Children's Aid Society. The fund made an appropriation to establish a behavior clinic in Grand Rapids allied with the public schools, and provided funds for an experimental playground for preschool children, and helped the parent-teachers associations in the distribution of twenty-six loan collections of books to children removed from libraries, reaching 9,555 children. The Children's Fund is financing for three years a cooperative program with the department of public instruction and education for a health education course to be given at normal colleges. The trustees are at work on a child guidance program and have joined with the Individual Psychology Foundation and the Detroit Society for the Scientific Study of Character to demonstrate the value of psychiatric skill in treating problem children. The fund plans to erect a building for administrative offices and laboratory facilities located near the Children's Hospital of Michigan. The sum of $384,790.86 has been added as earnings to the contribution of Senator Couzens of $10,000,000. Appropriations totaling $740,697.92 have been made, of which $156,715.44 has been disbursed.

there were indications that the number and ratio of the unfit were increasing. If the process was allowed to continue, national degeneracy was merely a matter of time. The only way to avoid it was by increasing the propagation of the fit and preventing that of the unfit. Partial intervention by man in the shaping of his destiny could end only in disaster. Not only was eugenics necessary, but the logical consequence of the steps he already had taken. Before the state would take some definite action, the public conscience must be awakened and the essential thing was the education of public opinion as to the responsibilities of parenthood. In this the church, with its opportunities of teaching, could render incalculable service to mankind.

An "Honors Medical School"

St. Mary's Hospital is one of the smaller London hospitals with a medical school. It contains 350 beds, but upward of 700 beds are available for clinical teaching in affiliated institutions, so that there is no lack of material for this purpose. But the school is ambitious and progressive and has achieved something not attempted by the larger schools. Its motto is "quality, not quantity" and it is what its dean calls an "honors medical school." It confines the number of students admitted each year to fifty, who are not, as in other schools, simply men who have passed a qualifying examination entitling them to be medical students, but picked men. This year forty-eight men competed for entrance scholarships, which are awarded not by examination but by nomination, after careful consideration of the records and reports by headmasters and college tutors. In the first instance the candidates are singled out by those who report on them as the most deserving and promising of their year. The introduction every year of a considerable number of such men means that they constitute a fair proportion of the total students of the school, and this proportion is increasing. It provides the nucleus of an honors school such as exists nowhere else in England. The school is being rebuilt and will soon have buildings and laboratories of the most modern type, which will embody everything that experience of America and the continent has proved desirable. The Institute of Pathology and Research is under the personal direction of Sir Almroth Wright, whose work on vaccine therapy is so widely known.

"The Peking Man"

In The Journal, May 10, p. 1516, it was stated that Prof. Elliot Smith regarded the discovery of a skull at Choukoutien, near Peiping, as probably the most important contribution to knowledge of early Pleistocene man that has been made. It is so important that a special name, *Sinanthropus*, has been given to this new member of the human family. It presents features analogous to *Pithecanthropus* and Neanderthal man but belongs to a genus distinct from both. The base of the skull, unfortunately unknown in the case of *Pithecanthropus*, displays startlingly simian characters. Prof. Elliot Smith is now visiting Peiping at the invitation of the Chinese government for the purpose of studying the *Sinanthropus* remains. In a lecture delivered before the Chinese Geological Society he stated that the remains are "the most valuable and illuminating evidence of man's early history yet revealed." He declared that the judgment he had previously formed on the basis of written reports was an underestimate of the importance of the discovery, the significance of which transcends his most sanguine hopes. He considers that when the report of Dr. Davidson Black, the Canadian anatomist lent to the Geological Survey of China by the Rockefeller Foundation, on the cast of the brain cranium, now in course of preparation, is submitted, "a flood of light will be thrown on the organ responsible for conferring on man his human qualities of mind and skill."

Birth Control Sanctioned by Indian State

A step without precedent in India, or in the British empire, has been taken by the government of the Indian state of Mysore, which has given official approval to the establishment at the four principal hospitals of state birth control clinics. Dr. Subba Rao, the senior surgeon of Mysore and principal of the Medical College of Bangalore, an Indian who received his medical training in Madras and London, recently drew up proposals for the establishment of contraceptive clinics at the four large hospitals of the state. In submitting his scheme to the government he pointed out that many women were so debilitated by ill health or frequent child bearing that maternity was inadvisable both in their interests and in those of their progeny. He therefore suggested that they should be instructed in contraception by women physicians. He proposed that the women medical officers at the Victoria Hospital, the Maternity Hospital at Bangalore and two other hospitals at Mysore should be authorized to give this instruction to those who had bona fide reasons for acquiring it. He proposed that contraceptive appliances should be kept in stock at these hospitals and supplied at cost, and finally that Dr. C. V. Natarajan, who has made a special study of contraception in America, should cooperate with the women physicians by giving advice as to the development of the clinics. He made it clear that the women physicians would give advice only to married women who needed it for considerations of health or for economic reasons. It is announced in the Mysore government gazette that official approval has been given to the proposals, and expenditure has been sanctioned for the purchase of contraceptive appliances to be kept in stock at the hospitals.

PARIS

(From Our Regular Correspondent)

Oct. 8, 1930.

Variations in Efficacy of Antidiphtheritic Serum

Addressing recently the Academy of Medicine, Mr. Jules Renault, "inspecteur général" of the ministry of public health, presented a communication on the interpretation of the variations noted by physicians in the efficacy of antidiphtheritic serum, which, it appears, is not the same in different countries and at different times. The variations have usually been ascribed to the different mode of preparation—to the differences in the number of the antitoxic units. The ordinary French serum contains from 300 to 350 units, although the pharmacopeia requires only 250 units. The failures are due, according to Mr. Renault, to various causes. In the first place, there is the peculiar gravity of certain epidemics. There may be also other additional diseases, or association with pernicious microorganisms, such as the streptococcus. Sometimes the youth of the subject or the delay in treatment may be incriminated. The earlier the injection is given, the better chance there is of saving a child. He advised vaccinating children with the Ramon anatoxin at the end of the first year of life.

Congress of Plastic Surgery

The Société française de chirurgie réparatrice, plastique et esthétique, the founding of which was announced six months ago, held its first congress in Paris, October 3 and 4. Dr. Dartigues, the founder, was to have presided but the evening previous he had been taken to the hospital for an urgent operation. Dr. Aubert of Marseilles, vice president, and Professor Jiano of Bucharest served in his stead. The meeting was attended by about sixty members and guests. Certain practitioners had thought it wiser to be absent, as they had been convicted of having presented photographs of operations, in which traces of dishonest retouching had been discovered with a magnifying glass. The society attaches great importance to the presentation of a program that is honestly scientific and seeks to avoid being invaded by unscrupulous practitioners from certain institutes. Communications on skin grafts, autoplastic operations and the cosmetic improvement of scars made up almost the whole program. Professor Jiano reported in detail the reconstruction of a destroyed nose by the use of the skin of the ring finger, which is left attached to the face for the whole duration of the cicatrization. The results, except for the loss of the little finger, are remarkably good. A scholarly paper was presented by Mr. Auguste Lumière of Lyons on the mechanism of the production of scars. He attributes to purely physicochemical and individual phenomena the disturbance of this process and the formation of keloids. Mr. Gucciardello of Vittoria, Sicily, described a case of reconstruction of a portion of the auricle by means of a reverted mastoid flap. Mr. Wallet read a paper on the radical treatment of hallux valgus and hammer toe. Mr. Bourguet of Paris dealt with the cosmetic surgery of displacements of the eyeball. Mr. Pierre Robin discussed the mode of deformation of the face in the child and in the adult in its relations to glossoptosis and the creation of the too elongated uvula. Mr. Stefani of Nice reported the application of electrocoagulation to the treatment of epithelioma of the eyelids. Dr. Maliniak of New York gave an account of rhinophyma and its complications.

Subsidence of Epidemic of Poliomyelitis

Although it is incomprehensible by what route the transmission occurs, sporadic cases of poliomyelitis are still observed in the remote regions of the primary focus; namely, Alsace. Some observations have been made in Strasbourg that tend to prove the important rôle of germ carriers. One of the suspected carriers is a physician, who is alleged to have established small foci of poliomyelitis among the children of families to which he had been summoned to treat patients with other diseases. The hypothesis that has been advanced in explanation is that the poliomyelitic virus is harbored by a great number of adults —probably in the nasal fossae—without manifesting virulence. Transmitted to young children when the seasonal conditions are favorable, it develops in them in its virulent form, and it is this new form, picked up and carried by the germ carrier, that gives to the disease an epidemic character. A form of prophylaxis has been proposed, which consists in the systematic disinfection, every day, of the nasal fossae, among the whole population—children and adults—of the regions of the area attacked.

Smallpox Vaccination in Paris

A report of Dr. Roux, addressed to the Conseil d'hygiène et de salubrité, of the department of the Seine, announces the results, last year, of the campaign against smallpox in Paris. Not a single case of the disease was notified. The efficacy of the vaccine employed was shown by the results of the primary vaccinations, more than 80 per cent of which "took." A total of 210,990 vaccinations were given, or 15,925 more than in 1928, mostly in the hospitals and maternities and in the public schools. During the year 1929, 42,521 living births were recorded in Paris, with a mortality of a little more than 10 per cent (4,305 deaths) during the first year of life. If from the number of births the number of children who died before the third month is subtracted, these probably not having been vaccinated as yet, there remain 40,108 new-born, 33,366 of which were vaccinated by the public services. To complete this figure, there should be added the primary vaccinations performed at the Hôpital des enfants assistés, where the total number of inoculations was 2,374, without any distinction being made between primary vaccinations and revaccinations. To these numbers should be added the vaccinations of infants performed in the homes, the number of which is unknown. The public services in Paris perform thus three fourths of the primary vaccinations. Few of the new-born in the capital escape vaccination against smallpox. About 4,921 children 11 years of age were revaccinated in the bureaus of charity and in the outpatient department of the hospitals; but almost all the children of that age were reinoculated in the various schools. It is not the vaccination service of the city of Paris that revaccinates the great majority of the men aged 20, but the service of the army medical corps, just before they are enrolled in their regiments. Those who are exempt from military service are nearly all revaccinated, for a recent certificate of revaccination is required of those entering the administrative services, or the trades or industries. The law is well enforced among this class of young men. This is not equally true of the young women of corresponding age. Many of them neglect to present themselves for revaccination. Thus, when an outbreak of smallpox occurs, it is the women who furnish the majority of victims. The number of persons who are not legally obliged to be revaccinated but who are revaccinated in Paris is considerable. In 1929, it amounted to more than 88,000. Two routine revaccination periods are held each year in the schools of the city of Paris, the first on the reopening of the schools, in October or November; the second in May or June. At the second session in May, the children are vaccinated who have entered during the year, together with those in whom the vaccination did not take in October. Not a single case of postvaccinal encephalitis, such as have been observed in other countries, has developed in Paris.

TURKEY

(From Our Regular Correspondent)

Ankara, Sept. 27, 1930.

Antimalaria Work

Communities which the ministry of health and social assistance has declared infected with malaria are obliged to report on all forms of malaria. Military organizations are to carry out antimalaria work conformable to the principles adopted by the ministry of health and are to report on measures taken to the directors of malaria control work or to the health department.

Antitrachoma Work

In communities where trachoma is prevalent, the ministry is to organize antitrachoma committees and establish institutions where treatments and operations are to be carried out gratuitously. Committees organized in trachoma control zones are authorized to register and examine the whole population and have those suffering from trachoma brought to the institution for treatment. Persons suffering from trachoma in the infectious stage are not allowed to attend schools, factories, workrooms or any institutions, governmental or private. In trachoma control zones the ministry of health, together with the ministry of education, is to decide on special measures in regard to school work. Military organizations are to carry out antitrachoma work conformable to the principles adopted by the ministry of health and are to report on measures taken to the health authorities of the community.

Control of Venereal Diseases

Persons suffering from any syphilitic condition are under obligation to seek treatment from a duly authorized physician. The responsibility for the treatment of children rests with the parents or with institutions caring for children. All practicing physicians are at the end of each month to report in writing to the respective departments of health new cases of syphilis, giving name of patient, age and the stage of the disease, and state whether the person has before been treated by a physician. Officials who unlawfully make use of any secret information are liable to punishment. Persons suffering from syphilitic conditions may secure treatment free of charge from a government or municipal physician or at a dispensary. The directors of health and social assistance are authorized to have examined persons suspected of spreading venereal diseases. Such persons are permitted to have themselves examined by a private physician and to present this certificate if they desire. Persons suffering from venereal diseases may be forced to undergo treatment and they may also be forcibly isolated and treated at a hospital if suspected of spreading the disease. If a person suffering from venereal disease is lost sight of without having finished treatment, the attending physician is obliged to send a written information to the respective department of health and social assistance.

All physicians are obliged to provide persons suffering from venereal disease with a leaflet issued by the ministry of health on which the danger of the diseases and routes of infection is explained. In case of a child, information and a leaflet are given to the parents or to a person responsible for the child. Persons knowing that they suffer from a venereal disease who knowingly infect another person are liable to punishment, but this depends on whether a complaint is made. It is prohibited that an infant known to be syphilitic be given to a wetnurse. In communities where a large part of the population is suffering from syphilis, the ministry of health is to organize syphilis control committees and to provide the facilities for treatment. Syphilis control committees are authorized to examine and register the whole population of their respective zone and give treatment to those suffering from syphilis.

In the army, venereal disease control work is to be carried out by special departments. Persons suffering from syphilis in the infectious stage are not released from service until successfully treated. Those who contract syphilis during military service are to have their treatment entered on their records and are reported by the ministry of national defense to the ministry of health.

Antituberculosis Work

The names and addresses of all new cases of tuberculosis of the lung and larynx as well as those of persons having died from any other form of tuberculosis are to be reported. Physicians are to report to the nearest health department all deaths from tuberculosis within twenty-four hours and all new cases within eight days after diagnosis. A physician knowing that a tuberculous person intends to move is obliged to report this to the health department to which the case has previously been reported. The directors of hospitals, maternity hospitals, prisons and all other governmental, charitable or private institutions are to report within twenty-four hours all deaths from tuberculosis.

Physicians may avail themselves free of charge of the services of governmental laboratories where tuberculosis specimens may be sent for examination. On the advice of a governmental, municipal or other attending physician, the home of a tuberculous person may be disinfected free of charge. The ministry is authorized to isolate and treat at a hospital persons suffering from active tuberculosis who are liable to infect others.

Physical Examination Before Marriage

In all men and women intending to get married, a physical examination is required. A regulation is to be published by the ministry of health and social assistance with regard to special points to be considered in such examination. Persons suffering from syphilis, gonorrhea, soft chancre, leprosy or a mental disease are not permitted to get married. Unless they have been scientifically treated and are past the infectious stage or can present a certificate that they are cured, they cannot procure a marriage license.

Marriage is postponed for six months for persons suffering from advanced active tuberculosis. If at the end of that time the condition has not improved, another postponement for six months is to be decided on. At the end of such time the attending physician is obliged to advise both parties as to the danger of the disease and its effects on marriage.

To make sure that wetnurses do not suffer from venereal disease, tuberculosis or leprosy, they are to procure the certificate of a physician. Such certificates have to be renewed every six months. It is prohibited to have women who do not present such a certificate and who do not make any efforts to procure one serve as wetnurses.

Persons selling or serving foods or drinks, and hairdressers, are to have a physical examination every three months and renew the health certificate. If such persons are suffering from syphilis in the infectious stage, active tuberculosis, leprosy or a skin disease they are not permitted to carry on such work. Examinations are to be carried out free of charge by the municipal physician and, in a community where there is none present, by the government physician.

JAPAN

(From Our Regular Correspondent)

Sept. 8, 1930.

Sanitary Commission of Tokyo

When Mr. Nagata, new mayor of Tokyo, met the sanitary commission for the first time after his appointment, Mr. Yuasa, chief of the health section of the city, reported that the tuberculosis patients entrusted to the sanatoriums in the city amounted to 18,250 a year. So the expenditure for the next fiscal year (1931) is to be renewed.

Police Heads in Tokyo Discuss Health Problems

Under the auspices of the metropolitan police bureau, the heads of the police stations in Tokyo held a conference in the bureau, August 18. The sanitary problems discussed by them included house cleaning and disposal of filth; birth control; supervision of the midwives in the prefecture; treatment of trachoma and tuberculosis; public education on the prevention of dysentery, and supervision of barbers and women hair dressers. They decided to lay stress on birth control, agreeing that drugs and appliances to inhibit impregnation or facilitate early abortion methods should be strictly forbidden by police regulations.

The Business Depression and Hospital Fees

Japan has been affected by the depression of business so severely that more than 300,000 persons are out of employment. Some public hospitals, such as the hospital attached to the Osaka Medical College, that of the Osaka branch of the Japan Red Cross Society, and that of the Okayama Medical College, have made a reduction of 10 per cent in the hospital fee and some 20 per cent in the price of medicine. Some medical associations are opposed to the reduction, saying that the hospitals are courting notoriety too much. However, members of the house of representatives from the Seiyukai party, the opposition, as well as those from the Minseito party, are reported as having addressed to the minister of the interior a memorial concerning the reduction of medical fees in general. The hospital of the Shiga branch of the Japan Red Cross Society, at Otsu, is also reported to have decided to make a reduction of from 10 to 15 per cent at the beginning of September.

The Far East Association of Tropical Medicine

To the eighth congress of the Far East Association of Tropical Medicine, which is to be held at Bangkok, Siam, December 7-13, the following delegates have been appointed: Drs. B. Tanabe, imperial Japanese army; Y. Hiki, imperial Japanese navy; N. Onodera, department of education; S. Yamada, government institute for infectious diseases and Keio University. The department of the interior, the Chosen government, and the South Manchuria government will each send a delegate.

First Case of Psittacosis in Japan

A sailor whose birthplace was Nagoya fell ill soon after his arrival at Yokohama, June 17, from America and died at his native place, July 12, after suffering from continual diarrhea and emesis. The case is said to have been the first of psittacosis in this country. The home ministry is reported to be on the point of taking steps to check the importing of parrots from America.

BUDAPEST

(From Our Regular Correspondent)

Oct. 1, 1930.

The Spread of Trachoma in Hungary

Trachoma had taken root at the beginning of the last century on the boundaries of the country populated by Serbs, Croats, Slovaks and Roumanians. Prior to 1883, scarcely anything had been done to prevent this disease. Attention was called to trachoma by a court of justice. Dr. Feuer was then entrusted to examine the population of three districts, 100,000 persons, and he found that from 4 to 5 per cent of the population had trachoma. It was obvious that trachoma had assumed an endemic form in other parts of the country. The minister of the interior appointed Professor Feuer leader of a campaign, and in 1886 the Hungarian parliament passed a bill, the provisions of which are as follows: 1. Expenses connected with the treatment of indigent patients were to be borne by the state treasury. 2. Where the disease was most prevalent, eye specialists were to be sent to perform the treatment in the larger centers, to organize the treatment of patients in the villages, and to instruct district physicians in methods of treatment. 3. Temporary trachoma hospitals were to be erected. 4. In order to train medical officers, municipal, village and parish physicians in the pathology and therapy of trachoma, the minister ordered that courses of instruction be held in larger centers, and all participating physicians should get adequate remuneration for the duration of the courses in case they had to leave their place of residence. 5. The cost of all these measures were to be defrayed by the state. This law, however, was ineffective, owing to the lack of moral support from the public. In 1912 Professor Feuer died and Professor Emile Grosz was appointed government commissioner. He started with the following program:

1. Continuous observation of all trachoma patients by (*a*) notification; (*b*) examination of eyes in schools, factories and tenements, and of apprentices, domestic servants, demobilized soldiers and recruits; (*c*) general eye examinations of the population, this last measure to be applied exceptionally on the demand of the central authorities.

2. Free treatment in trachoma dispensaries; the medical service to be made by the local physicians, who were to get fixed salaries. The treatment done by these practitioners to be controlled by the district ophthalmologist, who was also the head of the district eye hospital, of about fifty beds.

3. Improvement of hygienic conditions in schools, factories and workshops; the foundation of industrial colonies in the trachoma-stricken districts, in order to check the movement of trachomatous workers, and the supporting of the families of trachoma patients who were incapacitated. Soldiers suffering from trachoma were to be treated in military hospitals. Those cured were to join their regiments.

4. For the advancement of knowledge in the pathology and treatment of trachoma, competitions with attractive prizes. For enlightenment of the public, occasional popular courses.

Professor Grosz's efforts bore fruit. In several cities, special trachoma hospitals, and in existing hospitals, trachoma wards and eye dispensaries were erected until there were 1,200 beds available for trachoma patients. In 1911, twelve trachoma and ninety parish physicians were entrusted with the treatment of patients. He succeeded in persuading the military and civilian authorities to work hand in hand against trachoma. The Conscription act of 1913 contained the provision that those suffering from trachoma, yet otherwise fit for military service, should be placed in a hospital managed by specialists three months prior to the regular time of entrance. Those cured joined their regiments, while those who were incurable were submitted to superior decision at the end of December.

During the late war, the war ministry formed trachoma regiments. The official report of these formations, which, moreover, had been engaged in action, showed that 78.5 per cent were cured, 21.2 per cent still required treatment, and only 0.3 per cent were certified as unfit for military service. Looking forward to the time of demobilization, Professor Grosz adopted extensive precautionary measures. The revolution, however, prevented the execution of those measures. The men of the trachoma wards were scattered and thus carried the disease to areas hitherto immune.

The campaign against trachoma had been successful up to the outbreak of the war. Patients with trachoma were reduced at the dispensary of the Royal Hungarian Ophthalmologic Clinic from 7.2 per cent in 1891 to 2 per cent in 1910. In Torontal County, where every inhabitant was examined in 1883, trachoma was reduced in seventeen years from 4.5 per cent to 1.2 per cent. Of the recruits of the Hungarian army, upward of 2,000 annually were rejected on account of trachoma. In 1924 Dr. J. Brana, surgeon-in-chief of the army, compiled a map on which the soldiers suffering from trachoma were grouped according to the districts to which they belonged. The map showed that the disease was rife throughout the land.

The minister of public welfare felt moved in 1926 to make new inquiries in the schools, institutes, prisons, factories and tenements. The result was that, of 8½ million inhabitants, 10,000 trachoma patients were brought to light. Of 829,284 school children, 3,257 were found to suffer from trachoma. A terrible picture of the spread of trachoma is afforded by two districts in Zala County, where examinations were carried out by reliable specialists. Dr. William Schiller discovered that, out of 3,214 inhabitants examined in one district, 1,247, that is, 39 per cent, were suffering from trachoma. Dr. Lénard found a family in which ten, and another in which eleven, and a third in which eight members were infected with trachoma. These revelations caused the minister to entrust with the treatment competent physicians whose emoluments were insured by the state.

Statistics from the eye clinics show that this evil has taken deep root. In the dispensaries belonging to the eye clinics, the number of trachoma patients in Budapest is 1.5 per cent, in Szeged 10 per cent, in Pécs and Debreczen, respectively, 5 per cent. The difficulty of the situation is shown in the fact that of the trachoma patients examined at the university eye clinic number 1 in Budapest upward of 50 per cent were suffering from pannus, so that the visual power was already endangered. Notwithstanding that the finances of Hungary are weak, the *sum of 81,000 pengö ($16,200) has been appropriated for the* present year for the campaign against trachoma. Besides this, the sum of about 245,000 pengö has been requested in respect of hospital attendance.

There are twenty-two physicians entrusted with the treatment of trachoma, while fifty-nine dispensaries have been founded. In postwar Hungary, there are 1,200 beds available for the treatment of eye patients in university clinics and eye wards, of which 316 are for trachoma patients. The number is entirely inadequate.

The Budapest Royal Hygienic Institute

The Budapest Royal Hygienic Institute, which was opened two years ago, is the best equipped institute in Europe. At present there is an Italian commission of five members making a study of the institute, the intention being to erect a similar one in Italy. Some days ago the Turkish government applied to the Hungarian government requesting it to allow that the director of the institute, Dr. Johann, spend three months in Turkey in order to supervise and direct the new hygienic institute. The Turkish institute was erected in Ankara and it is planned to duplicate the equipment and methods of the Budapest institute. The chief work of the Ankara institute will be the training of medical officers of health. Professor Johann accepted the invitation, and he will shortly leave for Turkey with two assistants.

BERLIN

(From Our Regular Correspondent)

Oct. 6, 1930.

The Meaning of Life

At the recent International Congress of Individual Psychology, held in Berlin, Alfred Adler, the Vienna psychologist, delivered a noteworthy address on "The Meaning of Life." The subject can, of course, be viewed from widely different angles, and often one may even be inclined to ask whether life has in reality any meaning. One of the possible solutions is found in the fact that many persons base their hopes on a better world beyond the grave. "Individual psychology" interprets the meaning of life in a definite manner and bases on its interpretation conclusions of a practical nature. Individual psychology starts with the assumption that every human being has a life plan, a trend and a final objective peculiar to himself, although the individual himself may be unconscious, or only partly conscious, of the fact. The chief purpose of man is, then, to make this life plan a reality and to attain that final objective. The instinctive desire for such a realization is, however, often restricted by family and social considerations and also by bodily conditions. A sense of powerlessness in the face of unfavorable conditions may easily give rise to feelings of inferiority, which will serve to check one's development and hamper the realization of the life plan. In endeavoring to compensate for this inferiority, the individual comes into conflicts with himself and his environment. If one examines from this point of view children who are hard to manage and to educate, neurotics, persons mentally abnormal, criminals, suicides and sexual perverts, there is frequently found a lack of what Adler terms "community sense," or interest in the common welfare of their community. Any one lacking this sense, or this quality, is unable truly to solve the problems of life. The inner mental capacities of the individual can be developed only as capacities possessed in common with other members of the community and only in cooperation with the community. The "ego" in its thousand variations is differentiated chiefly by the degree of community sense. Therein lies the most profound meaning of life.

One chief purpose of individual psychology is to prevent the person born with inferior vital organs from becoming an invalid or a neurotic, and to show that the person afflicted with social impairments need not follow an asocial or antisocial course. In other words, to convert asocial tendencies into social aspirations is the task, or, expressed in terms of individual psychology, to encourage the discouraged and to aid in overcoming the resistance in the organism and the obstacles of one's surroundings and environment. It has been proved that, working from the principles of individual psychology, good success may be achieved in the training of children who are recognizably hard to manage. But it is difficult to apply this therapeutic art and not every one has the capacity for it. There are no logical, mathematically exact solutions, and Adler does not assume to possess any infallibility in the application. A cure can be effected only through bringing the subject into a state of reconciliation with the problems of life; that is, by causing him to recognize the aberrant nature of his aims in life and by strengthening the community sense, two important manifestations of which are the courage to live and the making of contributions for the general weal. A cure can be effected only through application of the principle of "Know thyself," for which, however, individual psychology, with its artistic technic, though not easily understood and not easily applied, constitutes an excellent guide.

The Heidelberg Orthopedic Congress

The jubilee congress of the Deutsche orthopädische Gesellschaft, held in Heidelberg recently, was well attended by German and also foreign physicians. Professor von Baeyer, the chairman of the society, opened the session with an address in which he gave an interpretation of the term "orthopedics." He stated that "orthopedics" has as its objectives the prevention, the detection and the treatment of enduring functional disturbances of the motor apparatus. An anniversary address was delivered by the Heidelberg pathologist Ernst on the subject "Structure and Function." Spitzy of Vienna presented a paper on the pathologic motor disturbances of the arm, and Steindler of Iowa discussed arm paralyses. Among the large number of papers presented, special interest is attached to that of Böhm of Berlin on "Explanation of Certain Defective Forms of the Legs" and that of Schrader of Heidelberg on "Principles of Mechanical Treatment in Orthopedics." Professor Ludloff of Frankfort discussed treatment of tuberculosis of the bone. Hohmann of Frankfort proposed a resolution that was unanimously adopted to the effect that—in view of the war injured, state aid for cripples, the prevention of bodily injuries in the oncoming generation, and the provision of bandages and prostheses for persons injured in accidents—orthopedics should be made one of the subjects in which, according to the new program for medical examinations, candidates for the degree of doctor of medicine must be examined.

Is Social Aid Exaggerated?

One hears, of late, such questions as these: Under the present conditions of universal stress, does not social aid with relation to public health take on an exaggerated character? Does it accomplish what its champions claim? Does it not weaken the feeling of self-reliance? Does it not tempt many to take refuge in the perception of some personal pathologic condition? At a recent session of the society Soziale Krankenhausfürsorge, Professor Gottstein, retired "ministerial director," gave his personal reactions to some of the foregoing questions. Since its foundation in 1916, this society has given aid to nearly 5,000 persons in the university clinics of Berlin. Gottstein would not admit that the questions cited were more than partially justified—in the main they are exaggerated. He rejects them, however, entirely as far as social aid to hospital patients is concerned. The movement is purely social to the extent that it takes an interest in the economic conditions of the hospital inmates and supplies aid when needed. But its interest in social hygiene goes further than that and it must develop more in this direction by combining with the aid given in the hospital the aid needed after dismissal, in order that gains made in the hospital may be preserved, recurrences may be prevented and the earning capacity remain unimpaired. This applies more particularly to patients under treatment for malignant tumors, tuberculosis, venereal diseases, and mental disturbances, but also to patients with diabetes and to many persons with gastrointestinal disorders.

The society furnishing aid to hospital patients must give help to the physician and to the nurse in the hospital and support them in their respective tasks. More and more, the sick-bed is migrating from the individual home to the hospital, while treatment is carried on more on the wholesale plan. Under no circumstances must the patient in the hospital be allowed to become effeminated. Cooperation in carrying out occupational therapy is one of the important tasks of the movement. The recent development of the movement has been so much in the direction of health care that it must be taken out of the realm of the welfare authorities and placed in the hands of the health authorities.

After the patient is dismissed from the hospital, social aid for hospital inmates must be applied in accord with the attending physician. It must take the form of direction and of instruction. The patient must himself recognize the fact that, after dismissal from the hospital, he must submit to observation. The workers of the society must endeavor to awaken in him a feeling of self-reliance and an understanding of the needs of the situation, in order that he may come to recognize his own responsibility and his duty to preserve his health in the interest of himself and of the community.

Light as a Defense Against Disease

The main assembly of the Deutsche Gesellschaft für Gewerbehygiene was held recently in Breslau. During the course of the eventful session, which was attended by some 600 members and guests from Germany, Austria, the Saar region, Danzig, Switzerland, Hungary, Jugoslavia, Czechoslovakia, Poland, Japan and other countries, many papers were presented dealing with the hygienic conditions that must receive consideration in the building of homes and the planning of cities, and also in the organization of industrial plants and in the laying out of offices.

Of especial interest for a larger circle were the words of Prof. Dr. von Drigalski, "stadtmedizinalrat" of Berlin, on the topic "Labor and Dwelling." He called attention especially to the danger of the bacterial content of the air. In the light of present knowledge, it is by no means an heroic experiment to take a deep breath over soil inoculated with cholera bacilli, for bacilli are to be found in the liquids. The large number of relatively harmless causative agents of inflammation contained in the "living dust" of the air is evidently the source of many inflammations of the throat, to which man pays little attention, but also of many rheumatic infections. He demanded an extension of research from the field of rheumatism to that of sore throat. Even if no acute disorder develops, the organism is severely taxed by its constant struggle with the causative agents and is thus weakened in its resistance.

The best means of defense, he said, was light and light surroundings, rooms with white walls. The chemical action of light is underestimated. Whereas red, yellow and, to a certain extent, green light exert chiefly a warming effect, the short-waved rays, toward the direction of the violet, are more chemically active. It was formerly the supposition that the chemical action of light is confined to the skin—that it does not penetrate the deeper layers. Investigations have proved the assumption false. The tanning of the skin by the sunlight is more than a mere "beauty aspect"; it effects a strong stimulation of the circulation and thus also of general metabolism. The chemical action of bright sunlight in living rooms becomes evident through the fact that the bacterial content of the air is thereby considerably diminished or even entirely eliminated.

In addition to the stimulation of light, the so-called work stimulation is important for the preservation of health. Idle tissues not only do not develop but even atrophy. The most favorable frontage for isolated houses is toward the north, since the rooms toward the east and also the rooms toward the west have the sunlight for half a day. The living rooms must by no means be impaired by the use of unsuitable paint and decorations.

Marriages

August L. Fipp, Glandorf, Ohio, to Miss Marie Lillian Bause of Hollywood, Calif., in Ferrin Park, Wis., October 14.

Ben Hamilton Nicholson, Nashville, Tenn., to Miss Winifred Tucker of Tintah, Minn., September 2.

David C. Morton, Louisville, Ky., to Mrs. Elizabeth Booker Williams of Richmond, Va., September 11.

Duncan Bruce Wiley, Utica, Mich., to Miss Lorraine LaCroix of Mount Clemens, September 17.

Archibald Murdoch McKeithen, Louisville, Ky., to Miss Louise Wheat Bulkeley, August 15.

Robert H. Durham, Detroit, to Miss Mary Louise Edwards of Sileo City, N. C., September 3.

George L. Perusse, Jr., Chicago, to Miss Henrietta Bird of Wilmette, Ill., September 30.

William E. Range, Collinsville, Ill., to Miss Grace Hallworth, September 14.

Milton H. Seifert, Sherburn, Minn., to Miss Laura Dupont, May 31.

William Philpot, Augusta, Ga., to Miss Mary Bowles, July 14.

Deaths

John Aloysius Ceconi ⊕ Boston; Tufts College Medical School, Boston, 1904; director of medical inspection in the Boston public schools; formerly medical inspector, diagnostician, epidemiologist and director of the bureau of communicable diseases, Boston Health Department; served during the World War; aged 49; died, September 21, in the City Hospital, of cholelithiasis and myocarditis.

Elizabeth L. Peck ⊕ Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1885; member of the American College of Surgeons; for many years on the staff of the West Philadelphia Hospital for Women, and the Philadelphia General Hospital; aged 75; died, September 30, of carcinoma of the breast.

Ethelbert Hines Galloway, Jackson, Miss.; Vanderbilt University School of Medicine, Nashville, Tenn., 1903; member of the Mississippi State Medical Association and the American College of Surgeons; on the staff of the Mississippi Baptist Hospital, where he died suddenly, August 26, of heart disease, aged 50.

Isaac G. Shallcross, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1887; member of the American College of Surgeons; professor emeritus of rhinology and laryngology at his alma mater; on the staff of the Hahnemann Hospital; aged 68; died, September 21, of angina pectoris.

Robert Harold Morris, Kansas City, Mo.; Barnes Medical College, St. Louis, 1896; Tulane University of Louisiana School of Medicine, New Orleans, 1914; member of the Missouri State Medical Association; served during the World War; aged 54; died suddenly, August 24, of cerebral hemorrhage.

Paul Kreye, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1883; aged 76; formerly on the staffs of the Cook County Hospital, Columbus Hospital, St. Joseph's Hospital and the American Hospital, where he died, September 17, of tumor of the left lung and arteriosclerosis.

Robert Nebinger Meisenhelder, Hanover, Pa.; Jefferson Medical College of Philadelphia, 1871; member of the Medical Society of the State of Pennsylvania; aged 84; on the staff of the Hanover General Hospital, where he died, August 20, of injuries received when struck by an automobile.

John Paul Benson, Joliet, Ill.; Rush Medical College, Chicago, 1902; member of the Illinois State Medical Society; served during the World War; on the staffs of the Silver Cross Hospital and St. Joseph's Hospital; aged 53; died suddenly, September 12, of cerebral hemorrhage.

Thomas Jefferson Proffitt, Elk Park, N. C.; University of Louisville (Ky.) School of Medicine, 1903; member of the Medical Society of the State of North Carolina; aged 57; died, September 23, in the Grace Hospital, Banner Elk, of injuries received in an automobile accident.

John Edwin Hays ⊕ Louisville, Ky.; Hospital College of Medicine, Louisville, 1880; at one time professor of anatomy and dermatology at his alma mater; formerly on the staff of the City Hospital; aged 71; died, September 20, of coronary thrombosis and myocarditis.

Emily Frances Pope, Boston; New England Female Medical College, Boston, 1870; member of the Massachusetts Medical Society; for many years on the staff of the New England Hospital for Women and Children; aged 84; died, August 28, of cardiorenal disease.

Henry C. Mitchell, Carbondale, Ill.; Chicago Medical College, 1879; member and past president of the Illinois State Medical Society; member of the American College of Surgeons; aged 74; died, October 2, in a hospital at Jacksonville, of arteriosclerosis.

Lewis Van Gilder Guthrie ⊕ Huntington, W. Va.; College of Physicians and Surgeons, Baltimore, 1889; member of the American Psychiatric Association; superintendent of the Huntington State Hospital; aged 62; died, September 20, of chronic nephritis.

Arlington Pond ⊕ Cebu, P. I.; University of Vermont College of Medicine, Burlington, 1895; veteran of the Spanish-American and World wars; served in the U. S. Public Health Service; aged 57; died, September 19, following an operation for appendicitis.

Clarence Edward Kinley, Costa Mesa, Calif.; Hahnemann Medical College of the Kansas City University, Kansas City, Mo., 1901; formerly professor of pediatrics, Kansas City Hahnemann Medical College; aged 52; died, August 5 of diabetes mellitus.

Henry S. Beers, New York; Bellevue Hospital Medical College, New York, 1887; member of the Medical Society of the State of New York; on the staff of the Harlem Hospital; aged 73; died suddenly, September 6, in Kenoza Lake, of myocarditis.

Joseph Monroe Stanley, Banks, Ala.; University of Tennessee College of Medicine, Memphis, Tenn., 1909; member of the Medical Association of the State of Alabama; aged 43; died, August 29, in a hospital at Troy, of intestinal obstruction.

Joseph Solomon Lieb, Brooklyn; Long Island College Hospital, Brooklyn, 1920; on the staff of the Brownsville and East New York Hospital; aged 32; died, September 13, in the Mount Sinai Hospital, New York, of acute leukemia.

George Tancrede Lamarche, Putnam, Conn.; University of Montreal Faculty of Medicine, Montreal, Que., Canada, 1887; member of the Connecticut State Medical Society; aged 66; died, September 14, of chronic myocarditis.

John N. Hess, New Marion, Ind.; Medical Department, University of Tennessee, Nashville, 1881; member of the Indiana State Medical Association; formerly county coroner; aged 76; died, in September, of pneumonia.

Dorsey Paul Etzler, Woodsboro, Md.; University of Maryland School of Medicine, Baltimore, 1915; served during the World War; aged 40; died, in September, at Blue Ridge Summit, Pa., of pulmonary tuberculosis.

Elmer W. Cashman ⊕ York Springs, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1886; president of the bank, town council and school board; aged 69; died, September 6, of cerebral hemorrhage.

Albert W. Reddish, Sidney, Ohio; Homeopathic Hospital College, Cleveland, 1883; member of the Ohio State Medical Association; formerly member of the school board; aged 70; died, in September, of heart disease.

William F. McManus, Chattanooga, Tenn.; Medical Department, University of Tennessee, Nashville, 1897; formerly county physician and president of the board of health; aged 65; died, September 11, of myocarditis.

Robert Boyd Andrews ⊕ Belvidere, Ill.; Chicago Homeopathic Medical College, 1896; past president of the Boone County Medical Society; served during the World War; aged 57; died, August 15, in St. Joseph's Hospital.

Louis Irving Mason ⊕ Willimantic, Conn.; Medical Department of Columbia College, New York, 1891; served during the World War; on the staff of St. Joseph's Hospital; aged 64; died, September 29, of pneumonia.

Henry K. Du Bois, Port Orange, Fla.; Bellevue Hospital Medical College, New York, 1870; member of the Florida Medical Association; formerly mayor of Port Orange; aged 83; died, September 9, of nephritis.

H. Valentine Wildman, Sr., New York; University of Michigan Medical School, Ann Arbor, 1880; consulting neuropsychiatrist to the U. S. Veterans' Bureau; aged 72; died, September 24, of heart disease.

Edward Wilbur Vis ⊕ Grand Rapids, Mich.; Grand Rapids Medical College, 1903; served during the World War; aged 49; died, September 19, in a hospital at Waukesha, Wis., of aortic and mitral stenosis.

John Jay Farley, Belleville, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1873; M.R.C.S., England, 1874; for many years county jail physician and coroner; died, June 28.

Isham Edgar Perkins, Jackson, Tenn.; Vanderbilt University School of Medicine, Nashville, 1891; aged 60; died, September 20, in the Crook Sanitarium, of chronic nephritis and myocarditis.

Charles Elliot Thompson, Los Angeles; Cooper Medical College, San Francisco, 1894; member of the California Medical Association; formerly health officer of Dunsmuir; aged 60; died, July 25.

Newton L. Moore, Palmer, Texas; Medical Department, University of Tennessee, Nashville, 1890; member of the State Medical Association of Texas; aged 70; died, August 26, of heart disease.

Clarence Joseph Shafer, Norwood, Ohio; University of Cincinnati College of Medicine, 1921; aged 34; died, September 20, in the Good Samaritan Hospital, of acute hemorrhagic pancreatitis.

Edward Burtson Kellogg ⊕ Ypsilanti, Mich.; Michigan College of Medicine and Surgery, Detroit, 1901; aged 54; died, September 18, of acute suppurating sigmoid diverticulitis and peritonitis.

Philip Henry Killey, Vivian, W. Va.; Medical College of Virginia, Richmond, 1872; member of the West Virginia State Medical Association; aged 81; died, September 1, of acute uremia.

William Paul Tebault, New Albany, Ind.; College of Physicians and Surgeons, Baltimore, 1883; member of the Indiana State Medical Association; aged 65; died, September 26.

Robert Lee Crawford, Miami, Fla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1912; served during the World War; aged 40; died in August in Havana, Cuba.

Robert Malone King, Wyoming, Ill.; Louisville (Ky.) Medical College, 1898; member of the Illinois State Medical Society; aged 66; died, September 22, of heart disease.

Frank Louis Hodges, Monroe, Wis.; Rush Medical College, Chicago, 1900; member of the State Medical Society of Wisconsin; aged 59; died, September 4, of pneumonia.

Ole Mork, Blair, Wis.; King Fredericks University Faculty of Medicine, Oslo, Norway, 1900; member of the State Medical Society of Wisconsin; aged 56; died, August 2.

Frederick William Comings, Eugene, Ore.; University of Vermont College of Medicine, Burlington, 1886; aged 72; died, July 3, in Salem, of chronic myocarditis.

Charles Wessales Brodhead, Palisades Park, N. J.; New York Homeopathic Medical College and Flower Hospital, 1912; aged 46; hanged himself, September 3.

William Wright Milligan ⊕ Burlington, Iowa; State University of Iowa College of Medicine, Iowa City, 1897; aged 64; died, September 19, in a local hospital.

John J. Lancaster, Trezevant, Tenn.; Medical Department, University of Tennessee, Nashville, 1898; aged 67; died, September 21, of carcinoma of the lung.

Asahel Wesley James, San Diego, Calif.; Rush Medical College, Chicago, 1899; aged 62; died, in September, of an overdose of narcotics, self-administered.

Oscar P. Schaub ⊕ Winston-Salem, N. C.; Baltimore Medical College, 1898; aged 57; died, September 8, in a local hospital, of cerebral hemorrhage.

John H. Talbott, Hollywood, Fla.; Indiana Medical College, Indianapolis, 1875; aged 79; died, September 18, in Forest Hills, N. Y., of angina pectoris.

R. Furman Divver, Anderson, S. C.; Philadelphia University of Medicine and Surgery, 1868; aged 89; died, September 14, of cerebral hemorrhage.

Charles H. Stimson ⊕ Newark, Ohio; Bellevue Hospital Medical College, New York, 1879; aged 80; died, September 13, of pernicious anemia.

Luther W. Bell, Schoolfield, Va.; Memphis (Tenn.) Hospital Medical College, 1909; aged 48; died, September 21, in Danville, of cholelithiasis.

Edward Cook ⊕ Bellport, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1904; aged 51; died, September 7.

Warren H. Willyard, Kokomo, Ind.; Kentucky School of Medicine, Louisville, 1907; aged 66; died, September 24, of carcinoma of the liver.

Adam Fuhrmann, St. Louis; St. Louis Medical College, 1876; aged 76; died, September 8, in the Lutheran Hospital, of mesenteric thrombosis.

Daniel W. Bottorf, Astoria, Ill.; Missouri Medical College, St. Louis, 1899; also a dentist; aged 71; died, September 13, of heart disease.

Ira Lee Goodwin, Lake Providence, La.; Memphis (Tenn.) Hospital Medical College, 1910; aged 45; died, in August, of chronic myocarditis.

Lauren Jones, Daytona Beach, Fla.; Lincoln (Neb.) Medical College, 1908; aged 64; died suddenly, September 6, in Waynesville, N. C.

Helen Watson Winternitz, New Haven, Conn.; Johns Hopkins University School of Medicine, Baltimore, 1910; aged 45; died, April 25.

H. Hennerich Groth, Dayton, Ohio; Hahnemann Medical College of Philadelphia, 1879; aged 82; died, September 25, of arteriosclerosis.

Benjamin F. Edgington, Warren, Ind.; Curtis Physio-Medical Institute, Marion, 1889; aged 80; died, September 13, of heart disease.

John Lafayette Harrison, Winnsboro, S. C.; Atlanta College of Physicians and Surgeons, 1912; aged 54; died, August 30.

Bureau of Investigation

SANOVAPOR

Another Cure-All of the Liquozone Type

Sanovapor Laboratories, Inc., of Huntington, W. Va., put out a nostrum, Sanovapor, that is recommended for such conditions as: Catarrh, colds, hay fever, asthma, bronchitis, tonsillitis, sore throat, stomach, liver, kidney and bowel disorders, diseases of women, pyorrhea, gastritis, gastric ulcer, diabetes, Bright's disease, high blood pressure, piles, cuts, scalds, burns, wounds, sprains, abrasions, insect stings, old sores, boils, carbuncles, abscesses—and halitosis!

The therapeutic *modus operandi* of Sanovapor has been thus described:

> "SANOVAPOR sterilizes the blood and vitalizes it; it neutralizes the poisons and enables the poisons to pass through the bowels, kidneys, lungs and skin, the four channels of elimination.
>
> "SANOVAPOR gives to the blood an additional amount of the same *elements obtained by the atmosphere through the lungs.* When SANOVAPOR *is used nothing injurious remains in the system.*
>
> "SANOVAPOR stimulates healthy cell growth, causing unhealthy tissue to be thrown off, then eliminated through the system. It has a permanent value to the entire body through its tonic action."

The advertising matter also goes into detail regarding what is described as the "Specific Action of Sanovapor," thus:

> "*First action:*—SANOVAPOR penetrates the air passages—nose, mouth, throat, sinuses, Eustachian tubes in the ears, bronchial tubes and lungs, from lungs into blood-stream by inhalation.
>
> "*Second action:*—When swallowed SANOVAPOR enters Alimentary canal, or gastro-intestinal tract, consisting of mouth, gullet, stomach, appendix, small and large intestines, rectum to anus.
>
> "*Third action:*—SANOVAPOR reaches every part of the body through the blood-stream."

Especially does Sanovapor seem to be pushed as a remedy for diabetes. Like practically every other "patent medicine" sold for this condition, the exploiters emphasize the fact that the patient must carefully diet. Where this is done, the Sanovapor, of course, could be poured down the sink and equally good—or better—results obtained.

Because of the inquiries that have came in to the Bureau of Investigation regarding this product, an original specimen of Sanovapor was submitted to the A. M. A. Chemical Laboratory with the request that some analytical work be done on the product. The Laboratory report follows:

LABORATORY REPORT

"One original bottle of Sanovapor (Sanovapor Laboratories, Inc., Huntington, W. Va.) was submitted to the A. M. A. Chemical Laboratory for examination. The bottle contained 475 cc. (approximately one pint) of a lemon-yellow liquid of a pungent odor and bitter taste, and possessing a specific gravity of 1.0016 at 25° C. Qualitative tests indicated the presence of sulphur dioxide, sulphate, and a yellow coloring material. Chlorides and heavy metals were not found.

"Quantitative determinations yielded the following:

Total solids	0.095 per cent
Sulphur dioxide (SO_2)	0.064 per cent
Sulphate ($SO_4{=}$)	0.157 per cent
Total acidity after oxidation with hydrogen peroxide	1 N x 0.0585

"Those values may be calculated to:

Sulphuric acid	0.16 per cent
Sulphur dioxide[1] (calculated to sulphurous acid equivalent to 0.08 per cent)	0.06 per cent

"From the foregoing, it appears that this product consists essentially of a solution containing approximately 0.06 Gm. of sulphur dioxide and 0.17 Gm. of sulphuric acid, U. S. P., in 100 cc., and possessing a yellow color."

It is evident from the chemists' report that Sanovapor is yet one more imitation of the old Radam's Microbe Killer Many years ago, Radam's Microbe Killer, which emanated from New York City, consisted of a trifling amount of sulphuric acid and sulphurous acid, in water to which was added a little red wine. Twenty-five years ago when it was being pushed in the United States, the exploiters had dispensed with the wine (which merely added to the cost) and the stuff was reported by Dr. Harvey W. Wiley, on the basis of an analysis made by the federal chemists, to have the following composition:

"Sulphuric acid	0.59 per cent
"Sulphurous acid	0.016 per cent
"Inorganic matter	0.013 per cent
"Water by difference	99.381 per cent"

Radam's Microbe Killer was repeatedly declared misbranded under the national Food and Drugs Act, but like all medical fakes, *continued to flourish so long as the public was ignorant* of the facts and newspapers could be found to carry the advertisements.

Out of the ashes of Radam's Microbe Killer, there arose a similar product, exploited from Chicago under the name Liquozone. This preparation was recommended for fifty-seven varieties of human ailments, ranging alphabetically from asthma, blood poison, cancer, consumption and goiter to leucorrhea, malaria, rheumatism and throat trouble. Liquozone was analyzed and reported to have the following composition:

Sulphuric acid	0.9 per cent
Sulphurous acid	0.3 per cent
Water	98.8 per cent

Then, there was Septicide, a Milwaukee nostrum, which was recommended for practically everything from cancer to "sweaty feet." When analyzed by the government chemists, it, also, was *found to consist of small quantities of sulphur dioxide* and sulphuric acid in water!

Then came Oxytonic, which like its predecessor, Liquozone, also hailed from Chicago. It was advertised as a "tonic germicide" for internal and external use. This preparation, according to the analysis of the state chemists of North Dakota, contained:

Sulphurous acid	0.13 per cent
Sulphuric acid	0.16 per cent
Water to make	100.00 per cent

Following Oxytonic, there was Zymatoid, exploited from Rockford, Ill., and described as an "antiseptic, germicide and antiphlogistic," which had "absolutely no peer in medicine." Analyzed in the A. M. A. Chemical Laboratory, Zymatoid was found to be one more weak solution of sulphur dioxide and sulphuric acid in water!

After Zymatoid had faded from the picture, there came Anti-Phymin, put out, first of all, from Attica, Ind., and later from Pensacola, Fla. It, too, was recommended for practically the whole gamut of human ailments. The A. M. A. Laboratory reported that Anti-Phymin was a dilute solution of sulphurous acid and sulphuric acid in water!

And now Sanovapor. One of the outstanding features of nostrum exploitation is the lack of originality!

The New Physics.—Confidence in the uninterrupted order of law in the course of natural phenomena is based, after all, upon only modest successes achieved by human research in the intellectual coordination of natural events. This confidence has, therefore, no absolute character. Even today many are influenced by a feeling of opposition to the postulate of any unbroken order of laws. It is not easy for us to look upon our acts of will as dependent upon strictly causal sequence and to waive our faith in the spontaneity of our actions. "We can indeed do as we *like*, but we are compelled to like what we must do" means a bitter pill for proud man. . . . Despite our conviction that practical life cannot get along without the fiction of a free will, the doctrine of uninterrupted causality is in no serious danger of a threat on the part of philosophic psychology. Especially, experiences concerning the action of internal secretions, of hypnosis, and of certain poisons upon psychic reactions, have had the effect of fairly well silencing opposition from that quarter Today faith in unbroken causality is threatened precisely by those whose path it *had illumined as their chief and* unrestricted leader at the front, namely, by the representatives of physics—Einstein, Albert: The Drift of Civilization: A Symposium, New York, Simon and Schuster, Inc, 1929.

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[1] When sulphur dioxide is dissolved in water, it forms an equilibrium mixture of sulphurous acid and sulphur dioxide. $SO_2 + H_2O \rightleftharpoons H_2SO_3$

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

DIABETES AND PREGNANCY — STERILITY

To the Editor:—1. I have a patient with diabetes mellitus, a woman, aged 30, whose blood sugar ranges from 160 to 250 mg. per cubic centimeter with no sugar in the urine at this level. She is on a moderate diet, without insulin. She would like to have a child. Would it be safe for her to go through a confinement if she goes on insulin and keeps the blood sugar within normal limits? 2. Another patient, aged 38, is desirous of having a child. She has been curetted and has been on various glandular preparations. Both she and her husband appear healthy and normal, but no pregnancy has taken place. Please advise what else should be done. Please omit name and address. M.D., Kansas.

Answer.—1. A large proportion of women with outspoken diabetes mellitus are sterile and many diabetic women who become pregnant have abortions or premature labor. Formerly true diabetes had an unfavorable effect on pregnant women because a large number of them died. Nowadays many women with diabetes are successfully carried through pregnancy with the aid of insulin, but in some diabetic patients death results in spite of insulin. In the case cited, the patient should be advised to try to become pregnant. If she conceives, a careful control of her urine and blood sugar and the use of insulin if necessary will most likely enable her to go through gestation without any harm.

2. The statement is made that both the patient and her husband appear healthy and normal but tests should be made to make certain of this. First the husband's sperm should be examined. The sperm may be obtained in a small wide-necked jar or bottle or, better still, from the vagina after natural intercourse. If the latter method is chosen, the patient should be instructed to insert a piece of cotton into the vagina after coitus and go to the physician's office immediately so that the examination may be made as soon as possible. The simplest way to secure the sperm from the vagina is by means of a pipet. If the sperm is normal, a careful physical examination should be made of the patient. When making a pelvic examination, one must not omit using a speculum. If cervicitis is present it can be detected more certainly by inspection than by palpation. Not infrequently a cervical infection is the cause of sterility and it is usually easy to cure by means of an electrical cautery. If the sperm is normal and the pelvic examination fails to reveal any abnormalities, a Rubin tubal patency test should be performed. This test is followed by pregnancy in many instances. A curettement for sterility should not be done until it has been shown that the tubes are patent. Glandular preparations except perhaps thyroid are seldom effective in overcoming sterility.

INTOXICATING EFFECT OF ACETYLSALICYLIC ACID AND COCA COLA

To the Editor:—The young people of this community are using from 15 to 20 grains of aspirin dissolved in the well known soft drink Coca Cola as an intoxicating beverage and seem to get a result very closely resembling that from alcoholic beverages. Can you explain the mechanism of the intoxication? Will the continued use result in physical impairment and, if so, what may we expect?

E. L. Roberts, M.D., Cissna Park, Ill.

Answer.—The effects are due chiefly to central depression caused by the acetylsalicylic acid (aspirin), fortified possibly by a direct central stimulant action of caffeine and other constituents present in Coca Cola. Acetylsalicylic acid is known to exert a more powerful central depression than sodium salicylate because of the presence of the acetyl group. For this reason, acetylsalicylic acid is extensively employed by the laity as an analgesic, in the relief of headache, neuralgia and so on, and as an hypnotic. The actions of this drug are similar to those of small doses of alcohol, or of a weak alcoholic beverage, or of the barbitals or bromides. In definitely effective, but not paralytic, doses the effects are characterized by removal of central nervous inhibition, thus causing loss of self-control, laughter, dreams, abolition of pain and distress, general excitation, increased heart rate, and flushing of the skin; in short, the typical effects of a narcotic drug. Acetylsalicylic acid is not an unpleasant drug to take, and when taken with a beverage like Coca Cola, advertised for its exhilarating effects, which may be caused by a direct central stimulation by caffeine or other constituents, it is easy to see how the effects of one can be fortified by the other. For instance, a function now unopposed, because of the removal of inhibition by acetylsalicylic acid, is driven harder and faster than before.

The continued use of such a medicated beverage can result in undesirable effects, of the same general nature as those of narcotic habituation. These may be manifested by one or more of the following symptoms: nervousness, irritability, apprehension, insomnia, loss of appetite, cardiac irregularity, anemia, loss of body weight, diminished resistance, increased susceptibility to colds and to infections in general; or, in other words, a general impairment of health and character and all that this connotes. There is no doubt of positive dangers from the widespread use of such a medicated beverage, especially among the young. Here is a most insidious evil—the reenforcement of a popular and highly advertised beverage by a well advertised drug, both long suspected of dangerous tendencies. When opiates and cocaine went their way, then came the barbitals. Two states (California and Virginia) have already enacted legislation against the free dispensing and prescribing of these newer narcotics. The indiscriminate or illicit use of acetylsalicylic acid may cause similar restriction.

BURNING OF ROOF OF MOUTH FROM ARTIFICIAL DENTURE

To the Editor:—I have a patient who had two teeth extracted in the upper jaw in front. The permanent bridge was placed two weeks later. In a day or two following this, the patient started with burning in the roof of the mouth, mostly anteriorly, of a severe and annoying character. Many trips to her dentist followed and the two tooth bridge was cut apart without relief of symptoms. She went to another dentist, who blamed the bridge and removed it, with one tooth on each side of the bridge. A rubber denture of four teeth was made covering most of the roof of the mouth, with no amelioration or symptoms. At this time I sent her to a neurologist, who found everything normal and suggested a removal of the denture for such length of time to stop the symptoms, which took one week. The denture was then replaced and symptoms returned the same day. I had the dentist roentgenograph the upper jaw and the surrounding teeth, but nothing pathologic was found. I also had the dentist cut away as much rubber as possible from touching the roof of the mouth, and this brought no results. Salivation was always an annoying symptom and still is. The first teeth were removed two years ago and the other two one year ago. Can you tell me anything that can be done to relieve these symptoms and still give the patient biting surfaces? B. A. Braude, M.D., Johnstown, Pa.

Answer.—If a new bridge, which does not press on the gum tissue, can be made for this patient, she should have no further trouble. If she was comfortable after the denture had been out for a week, there appears to be no reason why there should be discomfort from wearing a "fixed" bridge—a bridge permanently attached to the two upper cuspid teeth.

INTERFERENCE WITH PREGNANCY COMPLICATED BY PHLEBITIS

To the Editor:—Mrs. W., aged 39, the mother of three children, the youngest of whom is 6 months of age, developed a phlebitis in both limbs after the last birth, and is not yet back to normal. The general health is fair and the blood picture normal. The patient is now six weeks pregnant and I am inclined to produce an instrumental termination. Would this possibly make a subacute phlebitis acute? Will leaving it alone be the better course? S. L. Weisbrod, M.D., Milford, Mich.

Answer.—Since only six months has elapsed from the time of onset of the phlebitis, it may be hazardous to do anything that may stir up the phlebitis. Since the phlebitis was bilateral, the infection must have been fairly extensive. There would be a distinct risk in performing an instrumental abortion at the present time. It is safer to allow the pregnancy to continue to term and have a normal delivery. Even at that time there will be some danger of a recurrence of the phlebitis, but it will probably be far less than instrumental interruption of pregnancy at the present time.

ESTIMATION OF BLOOD UREA — VEHICLES FOR THE DISPENSING OF ACETYLSALICYLIC ACID AND PHENOBARBITAL SOLUBLE

To the Editor:—1. Please give me the technic for estimating blood urea by titration with mercuric chloride and a comparison as to accuracy with a colorimeter method. 2. What is the best vehicle for acetylsalicylic acid? 3. What is the best vehicle for phenobarbital sodium? I dispense quite a bit of these drugs and have trouble getting it into solutions. Kindly omit name. M.D., Georgia.

Answer.—1. A paper on "Apparatus for the Determination of the Salivary Urea Index" was described by Hench and Aldrich (The Journal, April 12, 1924). The same authors published a paper on "Urea Retention: A Simple Method for Its Estimation by the Mercury Combining Power of Blood" (*Arch. Int. Med.* **38**:474 [Oct.] 1926). The principle of the method described by Hench and Aldrich was employed by Liebig in 1853. Owing to the fact that the method is not strictly accurate, it has been of little use in recent years. Hench and Aldrich have shown, however, that there is a definite parallelism between the figures for the mercury combining power of the blood and the urea and nonprotein nitrogen and point out how figures for urea may be roughly calculated. The LaMotte Chemical Products Company of Baltimore manufacture the Hench and Aldrich blood urea outfit, which has been graduated to read directly the number of milligrams of urea per hundred cubic centimeters of blood. Directions are supplied with the outfit. While this method will probably give reasonably reliable information regarding the level of the blood urea, it is not sufficiently less complicated than quite a number of methods which give accurate figures for the urea nitrogen of the blood to be given preference over these methods. Owing to its greater simplicity in the case of saliva, there would seem to be some reason for its use there.

2. Acetylsalicylic acid should not be dispensed in a vehicle unless it is taken shortly after preparation. In this instance, it may be dissolved in a mixture of alcohol and glycerin. In the presence of moisture, however, it rapidly breaks down to acetic acid and salicylic acid.

3. Phenobarbital soluble (phenobarbital sodium) is not considered stable on keeping in aqueous solution. In case an elixir of phenobarbital is desired, it is suggested that phenobarbital itself be used in a vehicle of alcohol and glycerin.

CEREBRAL HEMORRHAGE AS CAUSE OF INFANT MORTALITY

To the Editor:—What should be recorded as the cause of death of an infant, aged 14 days, born of a primipara, in right occipito-anterior presentation, after a hard twelve hour labor? Pantopon, ⅓ grain (0.02 Gm.), was administered at the first stage, and chloroform anesthesia later. No pituitary was given. After moderate resuscitation of the 9 pound (4,000 Gm.) baby girl, she seemed all right, nursing the breast, taking water, functioning and developing normally. At two weeks suddenly she started a fit of crying and ceased to take anything by mouth. After five hours' crying, she quietly relaxed. There was a tendency to hold the head to the right. The right eyelid was partly open, the left eyelid closed. The pupils remained stationary. There was jerky Cheyne-Stokes breathing. The heart beat was intermittent—now slow and now rapid. One minute periods of cyanosis occurred every hour or so. The temperature by rectum was 99 F. She died in eighteen hours from the onset. The stump, which seemed to have healed, oozed bloody serum during the last six hours. Donald McKay, M.D., Flatonia, Texas.

Answer.—The cause of death was most probably cerebral hemorrhage. That the process was a cerebral disturbance is indicated by the tendency to fixation of the head, the suggestion of right facial paresis, nonreacting pupils, and the respiratory and circulatory disturbances. This picture is most often produced by a cerebral hemorrhage, which in this case may be explained by the difficult labor and is supported at least by the oozing from the stump. The factor of trauma is important. There may have been too little hemorrhage to cause death shortly after birth, but continuous oozing might later bring about sufficient accumulation to cause the sudden collapse indicated. The blood was probably deficient in coagulating elements, which is suggested by the oozing from the stump.

TREATMENT OF PERSISTENT URETHRAL DISCHARGE

To the Editor:—I have a case in which early instrumentation and massage of an acutely inflamed prostate seem to have caused a urethral discharge of four years' standing. I have never found any gonococci, and the cellular elements vary from epithelial cells to straight pus and sometimes a number of lymph cells. I have found no tubercle bacilli. The prostate may be slightly enlarged but not nodular; the vesicles are not palpably affected. My irrigations of the bladder with mild antiseptics seem to have provoked a heavier discharge from the urethra. Can you recommend something? Please omit name. M.D., Wisconsin.

Answer.—A recurrent urethral discharge quite often is due to a chronic prostatitis and vesiculitis. Overflow of the exudation out of these organs then appears periodically as a urethral discharge. Digital stripping of the organs attached to the urethra often is insufficient in bringing about complete emptying of the prostate and seminal vesicles. By massaging the prostate and vesicles, one can secure satisfactory results. Decided improvement and in numerous cases eventual cure will be brought about by systematic massage combined with medical diathermy of these organs. Each treatment should be followed by instillation into the posterior urethra of an aqueous solution of strong silver protein, from 0.25 to 0.5 per cent in strength. Repeated endodermic injections of some foreign protein have also a salubrious effect.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 3, 1930. Basic Science. Sec., Mr. Louis E. Gebauer, Little Rock, Ark. Eclectic Board, Little Rock, Nov. 11 and 12, 1930. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith, Ark. Regular, Little Rock, Nov. 11-12, 1930. Sec., Dr. Sam J. Albright, Searcy, Ark. Homeopathic, Eureka Springs, Nov. 11, 1930. Sec., Dr. Allison A. Pringle, Eureka Springs, Ark.

California: San Francisco and Los Angeles, Dec. 10, 1930. Reciprocity examinations. Sec., Dr. C. B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

Connecticut: Regular, Hartford, Nov. 11 and 12, 1930. Sec., Dr. T. P. Murdock, 147 W. Main St., Meriden, Conn. Homeopathic, New Haven, Nov. 10, 1930. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

Florida: Jacksonville, Nov. 10-11, 1930. Sec., Dr. W. M. Rowlett, P. O. Box 603, Tampa, Fla.

Kansas: Topeka, Dec. 9, 1930. Sec., Dr. A. S. Ross, Sabetha, Kan.

Maine: Portland, Nov. 11-12, 1930. Sec., Dr. Adam P. Leighton, 192 State St., Portland, Me.

Maryland: Regular, Baltimore, Dec. 9-12, 1930. Sec., Dr. H. M. Fitzhugh, 1211 Cathedral St., Baltimore, Md. Homeopathic, Baltimore, Dec. 9, 1930. Sec., Dr. J. S. Garrison, 517 Old Orchard Rd., Ten Hills, Baltimore, Md.

Massachusetts: Boston, Nov. 12-14, 1930. Sec., Dr. Frank M. Vaughan, 144 State House, Boston, Mass.

Nebraska: Lincoln, Nov. 20-22, 1930. Sec., Mr. Ernest M. Pollard, Lincoln, Neb.

Nevada: Carson City, Nov. 3-5, 1930. Sec., Dr. Edward E. Hamer, Carson City, Nev.

Ohio: Columbus, Dec. 1-4, 1930. Sec., Dr. H. M. Platter, 85 E. Gay St., Columbus, Ohio.

South Carolina: Columbia, Nov. 11, 1930. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia, S. C.

Texas: Waco, Nov. 18-20, 1930. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas, Texas.

Utah: Salt Lake City, Dec. 15 and 16, 1930. Dir., Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City, Utah.

Virginia: Richmond, Dec. 9-12, 1930. Sec., Dr. J. W. Preston, 803 Medical Arts Bldg., Roanoke, Va.

West Virginia: Morgantown, Nov. 20, 1930. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

Wisconsin: Milwaukee, Dec. 13, 1930. Basic Science. Sec., Dr. R. N. Bauer, 3410 Wisconsin Ave., Milwaukee, Wis.

District of Columbia July Examination

Dr. W. C. Fowler, secretary of the Commission on Licensure of the District of Columbia, reports the written examination held at Washington, July 14-15, 1930. The examination covered 6 subjects and included 60 questions. An average of 75 per cent was required to pass. Fourteen candidates were examined and passed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
Yale University School of Medicine	(1924)	87.1
Georgetown University School of Med.	(1929) 82.3, (1930)	84.5
George Washington University Medical School	(1929)	78.6, 82.7, 84, 85.5, (1930) 85.3
Emory University School of Medicine	(1925)	78
Johns Hopkins University School of Medicine	(1927)	87.4
Harvard University Medical School	(1925)	85
University of Virginia Department of Medicine	(1926)	85, 85.4
Queen's University Faculty of Medicine	(1926)	78.7

Wisconsin June Examination

Dr. Robert E. Flynn, secretary of the Board of Medical Examiners of Wisconsin, reports the written and practical examination held at Milwaukee, June 24-27, 1930. The examination covered 19 subjects and included 100 questions. An average of 75 per cent was required to pass. Seventy-six candidates were examined and passed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
Loyola University School of Medicine	(1929) 88, (1930)	85
Northwestern University Medical School	(1930)	85, 86
Rush Medical College	(1930)	75, 79, 85, 85, 85, 85, 86, 87
University of Illinois School of Medicine	(1930)	81, 87
Harvard University Medical School	(1929)	85, 86, 86
Washington University School of Medicine	(1929)	89
Columbia University College of Phys. and Surgs	(1929)	85, 85
University of Oregon Medical School	(1929)	86
University of Pennsylvania School of Med.	(1928) 86, (1929)	87
Marquette University School of Med.	(1930)	78, 80, 80, 80, 81, 81, 82, 82, 82, 82, 83, 83, 83, 84, 84, 84, 85, 85, 85, 86, 86, 86, 86, 86, 86, 86, 87, 87, 88, 89, 89, 89, 90
University of Wisconsin Med. School	(1928) 86, (1929)	81, 82, 83, 84, 84, 85, 85, 86, 86, 87, 87, 88, 88, 88, 88, 90, 90
University of Manitoba Faculty of Medicine	(1916)	84
Leopold Franzens University Faculty of Med., Austria	(1919)	80

Dr. Flynn also reports 22 physicians licensed through reciprocity with other states and 1 by endorsement of National Board credentials, at the meeting held in Milwaukee, June 24-27, 1930. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
University of Arkansas School of Medicine	(1929)	Arkansas
Northwestern Univ. Med. School	(1896) (1907) (1929, 2)	Illinois
Rush Medical College	(1927, 2) (1928, 2) (1930, 2)	Illinois
University of Kansas School of Medicine	(1929)	Kansas
University of Minnesota Medical School	(1929) (1930)	Minnesota
Barnes Medical College	(1906)	Illinois
Jefferson Medical College	(1891)	Illnois
Meharry Medical College	(1928)	Tennessee
Vanderbilt University School of Medicine	(1928)	Tennessee
University of Wisconsin Med. School	(1928) Illinois, (1929)	Nebraska
University of Liverpool Medical School	(1925)	Illinois
University of Budapest Faculty of Medicine	(1916)	New York

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement of
University of Pennsylvania School of Medicine	(1926)	N. B. M. Ex.

Dr. Flynn reports an additional list of physicians licensed through reciprocity with other states at the meeting, April 8, 1930, held at Milwaukee. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Rush Medical College	(1930)	Illinois
Drake University College of Medicine	(1913)	Iowa
University of Minnesota Medical School	(1925)	Minnesota
Creighton University School of Medicine	(1922)	Nebraska

Virginia June Examination

Dr. J. W. Preston, secretary of the State Board of Medical Examiners of Virginia, reports the written examination held at Richmond, June 17-20, 1930. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. One hundred and eight candidates were examined, 105 of whom passed and 3 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
Georgetown University School of Medicine	(1929)	82, 86
George Washington University Medical School	(1930)	89
Howard University School of Medicine	(1928)	76, 79, (1930) 77, 79, 79, 81, 81
University of Maryland School of Medicine	(1929)	88
Jefferson Medical College	(1930)	87
University of Pennsylvania School of Medicine	(1929)	83
Medical College of Virginia	(1930)	75, 75, 77, 77, 78, 78, 78, 79, 79, 79, 80, 80, 80, 80, 80, 80, 80, 81, 81, 81, 82, 82, 82, 82, 82, 82, 82, 83, 83, 83, 83, 84, 85, 85, 85, 85, 85, 86, 86, 86, 86, 86, 87, 87, 87, 87, 88, 88, 88, 89, 89, 89, 90, 90
University of Virginia Department of Medicine	(1930)	78, 80, 81, 82, 82, 83, 83, 83, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 86, 86, 86, 86, 86, 86, 86, 87, 87, 87, 87, 87, 88, 88, 89, 89, 89, 90, 91

FAILED

College	Year Grad.	Per Cent
Howard University School of Medicine	(1928) 71.6, (1929)	72
Medical College of Virginia	(1930)	74.1

Dr. Preston also reports 10 physicians licensed through reciprocity with other states and 1 by the endorsement of credentials, at the same meeting at Richmond, June 17-20, 1930. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University Medical School	(1927)	Dist. Colum. (1929) N. Carolina
Howard University School of Medicine	(1925)	Dist. Colum.
University of Georgia Medical Department	(1909)	Georgia
Rush Medical College	(1913)	Illinois
Tulane University of Louisiana School of Medicine	(1917)	N. Carolina
University of Maryland School of Medicine	(1922)	W. Virginia
University of Pennsylvania School of Medicine	(1924)	N. Carolina
University of Tennessee School of Medicine	(1926)	Tennessee
Medical College of Virginia	(1926)	Maryland

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement of
University of Virginia Department of Medicine	(1888)	U. S. Navy

Nevada May Examination

Dr. Edward E. Hamer, secretary of the Board of Medical Examiners of Nevada, reports the oral and written examination held at Carson City, May 5-7, 1930. The examination covered 10 subjects and included 90 questions. An average of 75 per cent was required to pass. One candidate was examined and passed. The following college was represented:

PASSED

College	Year Grad.	Per Cent
George Washington University Medical School	(1924)	88.3

Book Notices

USEFUL DRUGS: A LIST OF DRUGS SELECTED TO SUPPLY THE DEMAND FOR A LESS EXTENSIVE MATERIA MEDICA WITH A BRIEF DISCUSSION OF THEIR ACTIONS, USES AND DOSAGE. Edited by Robert A. Hatcher, Ph.M., Sc.D., M.D., and Cary Eggleston, M.D. Prepared under the direction and supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Eighth edition. Cloth. Price, 60 cents. Pp. 176. Chicago: American Medical Association, 1930.

The appearance of a new edition of Useful Drugs is timely in view of the issue between the medical and nonmedical delegates on the floor of the Pharmacopeial Convention in May of this year. In a recent editorial discussing the attack on the physicians' right to apply the doctrine of therapeutic usefulness as a criterion for revision of the Pharmacopeia, THE JOURNAL again urged adherence to Useful Drugs as a safe guide to essential therapeutic preparations selected from the Pharmacopeia, the National Formulary and New and Nonofficial Remedies, stating that the need for such adherence by physicians will be even greater in the future than it has been in the past.

Useful Drugs is prepared under the direction and supervision of the Council on Pharmacy and Chemistry of the American Medical Association, the editors of the present volume being Dr. Robert A. Hatcher, a member of the Council, and Dr. Cary Eggleston. It presents a brief and comprehensive discussion of a selected list of drugs and is designed to supply the demand for a less extensive materia medica and therapeutics and for examinations in these subjects by the various licensing boards. The first edition of the book was prepared some fifteen years ago as a result of efforts made by the Council on Medical Education of the American Medical Association and the Confederation of State Examining and Licensing Boards to restrict instruction in materia medica to a fundamental list of drugs with which all medical students and practitioners might be expected to be familiar. Such a list was made and, after various revisions and critical suggestions from many representative members of the medical profession, was published in 1913. Since then the text has gone through several additions and revisions undertaken with a view to the deletion of drugs deemed to have become superfluous and the addition of others the value of which has become established.

Articles newly included in the eighth edition are: amidopyrine, diphtheria toxin for the Schick test, diphtheria toxoid, ephedrine, ephedrine hydrochloride, ephedrine sulphate, liver extract, merbaphen (novasurol) and mersalyl (salyrgan). Articles deleted from the book are: aconite, tincture of aconite, stramonium, and strychnine nitrate. The statements of actions, uses and dosage have been carefully revised to bring them up to date with the latest and best results of therapeutic and pharmacologic research. A copious index is provided.

DIE BEHANDLUNG DER RHEUMATISCHEN KRANKHEITEN. Herausgegeben von Privatdozent Dr. med. Arnold Zimmer. Mit einem Geleitwort von Geh.-Rat Prof. Dr. A. Bier. Paper. Price, 19.50 marks. Pp. 268, with 47 illustrations. Leipzig: Fischers medizinische Buchhandlung, H. Kornfeld, 1930.

The authors of this volume have been associated with the Professor August Bier Klinic in Berlin, and Professor Bier has written the foreword. Apparently the book is based on the experiences of this clinic and the treatment advised is that employed in this clinic. The term "rheumatic disease" is used in a generic sense, covering the various types. The chapter on medical treatment is written by Dr. Bruno Thom. Under the head of general treatment, the use of insulin is advised to increase the appetite of undernourished individuals. Under the head of treatment with specific antirheumatic remedies (and, by the way, the consensus at present is that the salicyl group is not specific in the true sense of the word) a large number of German proprietary preparations are indicated. It is the opinion of the author that in the milder types of acute polyarthritis the salicyl treatment lessens the treatment of cardiac complications. This statement is almost certainly fallacious. As Bier was the father of the passive hyperemic therapy, which he now considers a form of foreign protein therapy, it is not surprising that a chapter is devoted to the use of nonspecific protein or fever therapy. This chapter is written by Zimmer, The author believes that certain proprietary preparations capable of exciting a fever reaction are more valuable than some simple preparation such as typhoid vaccine. Chapter IV, on the surgical treatment of chronic arthritis, was written by Prof. Wilhelm Baetzner. Chapter V, on the orthopedic treatment of rheumatic disease, was written by Dr. H. Beck. Then follows a chapter on physical therapy by Dr. Ludwig von Pap; a chapter on balneotherapy by Hirsch; a chapter on massage and gymnastics by Kahlrausch; endocrine disturbances and rheumatic disease by Fehlow; technic of the reduction cure by Richter; venereal disease and rheumatism by Richter. Zimmer and Kempf have chapters on the relation of varicosities to arthritis deformans and their treatment. They believe that the varicosities observed frequently in the neighborhood of the affected joint, especially the knee, may be a factor in the discomfort or disability in this disease and advise their treatment by injections. Then follows a chapter on the treatment of gout by von Pap. The final chapter, by Zimmer, is on the interferometric method of Abderhalden's reaction as a diagnostic means in chronic rheumatic disease. This volume contains little, if any, information of value that may be regarded as new in the treatment of rheumatic diseases.

Disease and the Man. By George Draper, M.D., Associate Professor of Clinical Medicine, Columbia University. Cloth. Price, $4.50. Pp. 270, with illustrations. New York: Macmillan Company, 1930.

Among the leaders in American medical thought who urge a return to the hippocratic doctrine of viewing the man as a whole is the author of this book. The previous volume on "Human Constitution" appeared some years ago. The present book carries on the studies since that date. Many of the chapters have appeared in medical and biologic periodicals. An introductory chapter is followed by discussions of genetics, morphology, the influence of sex in determining human disease potentiality, the psychologic panel, the constitutional clinic, and the patient and his physician. Each of these chapters emphasizes the main thesis of the work as a whole and several contain illustrative cases indicating the clinical application of the study of constitution. The view that the investigation of disease requires knowledge of heredity, constitution, environment and personality no longer needs argumentative support. The problem of today is to secure application of this conception by general practitioners, specialists, industrial physicians and group practitioners who are crowded for time, insufficiently remunerated and economically incapable of making the type of study that a constitutional clinic demands.

Ricerche anatomo-cliniche su alcune emopatie. Da L. Riccitelli, aiuto e docente. Paper. Pp. 151. Pisa, 1930.

This brochure is made up of four articles concerned with various aspects of hematology. The titles will give an idea of the topics treated. The first article is on the existence of an acute hemocytoblastic aleukemic syndrome as an anatomic and clinical entity. The second treats of splenomegalic pernicious anemia and its relations with the ordinary pernicious anemia and with the splenomegalic hemolytic anemias. The third has to do with the relations between the agranulocytosis of Schultz and other abnormal blood conditions. The last is entitled the problem of the neuro-anemic syndromes.

Intern's Handbook: A Guide to Rational Drug Therapy, Clinical Procedures and Diets. By Members of the Faculty of the College of Medicine, Syracuse University. Under the direction of M. S. Dooley, A.B., M.D., Chairman, Publication Committee. Cloth. Price, $3. Pp. 254. Philadelphia: J. B. Lippincott Company, 1929.

This book has been prepared by members of the faculty of Syracuse University with a view to encouraging the proper use of drugs by interns and with a view to providing the intern with a ready reference to the subjects which he might be called to know in an emergency. The list of drugs is essentially a list of useful drugs somewhat more abbreviated than that which appears in the volume prepared under the auspices of the Council on Pharmacy and Chemistry. Following the list of drugs is a section on the treatment of poisoning and a section on such essentials of clinical pathology as might occupy the attention of the intern in the average general hospital. The rules governing roentgenology are planned to aid the intern with his work in that department. The section on diagnosis consists essentially of outlines of the most used procedures. There are also sections on diets, on serums and vaccines, on obstetrics, and on other specialistic procedures. The book has a good index and there are plenty of blank pages for important notes.

Neue Deutsche Klinik: Handwörterbuch der praktischen Medizin mit besonderer Berücksichtigung der inneren Medizin, der Kinderheilkunde und ihrer Grenzgebiete. Herausgegeben von Prof. Dr. Georg Klemperer und Prof. Dr. Felix Klemperer. Band III: Echinokokkenkrankheit—Gelenkerkrankungen (chronische). Cloth. Price, 40 marks. Pp. 805, with 235 illustrations. Berlin: Urban & Schwarzenberg, 1929.

The third volume of this new encyclopedia of medical practice is essentially a collection of thirty-six monographs covering such subjects as eclampsia, eczema, electrical diagnosis and treatment, inflammation, enuresis, epilepsy, vomiting, the catching of cold, ferments, fevers, obesity, fractures, hospitals, furuncles, gallstones, obstetrics, brain abscess and tumors, psychiatry, and yellow fever. The German names for those conditions make the titles range from echinococcus diseases to *disturbances of the joints (Gelenkerkrankungen)*. Like the previous two volumes, this book is printed entirely on coated stock. It is superbly illustrated. The articles are sufficiently long to cover every important fact of the subjects considered and they are quite up to date. Practically all of them are written by German authors who have achieved importance in the fields concerned. Thus, those dealing with pathology are by Gerlach, director of the pathologic institute at Halle; the article on encephalitis is by von Economo, who is credited with having made the first modern identification of this subject in 1916; the subject of fractures is illustrated with more than a hundred plates, showing the fractures under the x-rays and the various devices used in treatment. One of the most valuable articles in the book is that on the deformities of the feet and ankles by Stracher. Each of the articles is complete with bibliographic notes, many of them referring to literature as recent as 1927 and 1928. By typographic display, important points are fully emphasized. This encyclopedia goes so far beyond any available similar work in English that comparison is impossible.

Care of Aged Persons in the United States. Bulletin of the United States Bureau of Labor Statistics, No. 489. Paper. Price, 70 cents. Pp. 305, with 40 illustrations. Washington, D. C.: Supt of Doc., Government Printing Office, 1929.

This volume provides a complete survey of the care of the aged by federal, state and local governments, by fraternal, labor, religious and private organizations, by employers and by special funds. There are 1,270 homes for the aged in this country and data have been obtained for 1,037. They care for approximately 70,000 people. About 85,000 people are cared for in almshouses. The data are invaluable to any one interested in the subject. They cover diets, furnishings, costs, systems of support, insurance and medical care.

Praxis und Theorie der [illegible] e zur Einführung in die Psychot[illegible] und Lehrer. Von Dr. Alfred Adl[illegible] 12.80 marks. Pp. 245. Munich: J. F. Bergmann, 1930.

Dr. Alfred Adler of Vienna presents in his book on individual psychology a series of lectures or discussions intended to be an introduction to psychotherapy particularly of interest to physicians, psychologists and teachers. He elucidates his well known and interesting conceptions as to the development of the neurotic and the psychotic individual, explains the attitude of the neurotic person toward life and society, gives an understanding of the goal or aim of these individuals and thereby affords a better insight into the prevention and treatment of these modes of individual reaction. Adler explains the strivings for superiority of neurotic individuals, the masculine protest, the extreme egotism and excessive ambition at the basis of the neurotic character, which is associated with a feeling of inferiority and inadequacy and which interferes with the purposeful activity of the individual and his adjustment to his surroundings. On the basis of his conceptions of the struggle for power and superiority, Adler explains various neuroses, perversions, melancholias, paranoias, and delinquencies in childhood and adolescence. The author attempts to elucidate the attitude and mode of development of the social and antisocial traits exhibited by these persons. He believes that they frequently originate in early childhood.

He emphasizes the necessity of encouraging and developing a social feeling (*gemeinschaftsgefühl*). He thinks that if the neurotic and the maladjusted child could be taught how to cooperate with his fellows the behavior difficulties would be adjusted. In order to achieve this goal, cooperation between parents, teachers and the affected children is necessary. Adler does not see as much in the influence of sex development on the mental habits and behavior as his distinguished teacher Freud. Indeed, Adler declares that he is at variance with Freud on this point and he believes that Freud overemphasizes the sex component in the psychic manifestations. The author stresses the need for prophylaxis, which he thinks will be best advanced by education of parents, physician and teachers in an understanding of the principles of modern individual psychology. He considers that the school offers the most promising possibilities for the control of the problem child. By this he implies that the parents have already failed. In order to achieve results it is important that physician, teacher and parent should cooperate and direct the child in the right directions to prevent maladjustments and teach him that to be normal spells willing and cheerful cooperation. Individual psychology attracts by its simplicity and its content of practical common sense. It offers a working hypothesis for the recognition and possibly the correction of some of the commoner behavior disorders. It attempts to explain to a degree the origin of the mental twists and unpleasant peculiarities of children as well as adults in every rank of society. Because of its practical uses and its application to everyday life, individual psychology has exerted a great influence on modern thought in the practice of medicine, pedagogy and psychology. It is not a complete and comprehensive system. It fails to explain to complete satisfaction origins, course and progress of many of these psychic deviations. Adler does not seem to take into account the influence of heredity, though he does speak of constitutional and physical deficiency as the basis of psychic inferiority. Individual psychology represents the thoughts and concepts of Alfred Adler. As such it is probably not all embracing or all enduring. Nevertheless he has founded a school and has succeeded in attracting ardent adherents in every part of the world as well as securing the marked attention of thoughtful persons in pedogogy, educational psychology and medicine.

THE DIETARY OF HEALTH AND DISEASE FOR THE USE OF DIETITIANS, NURSES AND INSTRUCTORS IN THE SCIENCES THAT PERTAIN TO NUTRITION. By Gertrude I. Thomas, Instructor in Dietetics, University of Minnesota. Second edition. Cloth. Price, $2.50 net. Pp. 276, with 5 illustrations. Philadelphia: Lea & Febiger, 1930.

This is offered as a textbook for schools of nursing and of home economics. The book is compiled from a dozen larger books and from the periodical literature. It seems to include just about all that those for whom it is intended should and can assimilate. It is concerned largely with tables of food values, recipes, special diets and similar subjects. It is fairly well organized but the addition of new material in the second edition has disturbed the organization. Thus the ketogenic diet is covered on pages 180-183 and again under epilepsy on page 257, where it is called the Peterman diet and quoted in full from his article in THE JOURNAL but not referred to under ketogenic diet in the index.

ULTRA-VIOLET RADIATIONS AND THEIR USES. By Robert Aitken, M.D., F.R.C.P.E., Lecturer on Diseases of the Skin, Edinburgh University. With a foreword by Sir Norman Walker. Cloth. Price, 10/6 net. Pp. 208, with 15 illustrations. Edinburgh: Oliver & Boyd, 1930.

This book completely covers the subject of ultraviolet radiation. In it the author briefly reviews the physics of light and its biologic effects. The rôle of the layers of the skin in the transmission of light, the changes produced in the blood stream, and the pathologic effects of ultraviolet radiation are clearly and lucidly stated. In the chapter dealing with apparatus the author differentiates between the carbon and the mercury arc, evaluates the energy derived from these sources, and states the indications for its use. A goodly portion of the book is devoted to technic. Here the author discusses the use of dosimeters and the significance of erythema and explodes the theory that ultraviolet radiation is contraindicated in pulmonary tuberculosis and in acute ailments in infants and in the aged. The major portion of the book is devoted to the treatment of various diseases all anatomically classified. The author cites not only his own experiences but those of his co-workers in the field of actinotherapy. An excellent bibliography is included. The book is systematic and thorough and should be useful both to students and to practitioners.

GROWING UP IN NEW GUINEA. A Comparative Study of Primitive Education. By Margaret Mead, Assistant Curator of Ethnology, American Museum of Natural History. Cloth. Price, $3.50. Pp. 372, with illustrations. New York: William Morrow & Company, 1930.

The author, as shown in her book "Coming of Age in Samoa," has the peculiar faculty of telling anthropologic and ethnologic facts in a way to interest the general reader. The group that she discusses in this book has a character different from that of most other groups of human beings; its tabus differ from those of most other peoples. The children are reared by a method that gives them independence early in life, and a responsibility for their acts that might well suggest methods to educational psychologists of more civilized communities. The sex life has a particular form of restraint somewhat like the puritanical concepts of the Victorian Age and of America previous to 1900. The manner in which this sex life inhibits character development is detailed by the author. There are eleven appendixes to the book giving specimens of the method of study and of the development of the Manus people. Miss Mead is convinced that imitation is the most powerful teacher, much more powerful than any adult technic, and she is inclined to deprecate the power of education to overcome biologic traits in human life. It makes no difference what one teaches in the school provided adults at home and away from home established other methods of conduct.

GUIDE TO THE SURGICAL INSTRUMENTS AND OBJECTS IN THE HISTORICAL SERIES WITH THEIR HISTORY AND DEVELOPMENT. By C. J. S Thompson, M.B.E., Hon. Curator of the Historical Section of the Museum With a foreword by the Conservator, Sir Arthur Keith, M.D., F.R.C.S. F.R.S. Boards. Pp. 92, with illustrations. London: Royal College of Surgeons of England, 1929.

The author is best known for two excellent books on the history of poisons and of quacks. As curator of the museum of the Royal College of Surgeons he has studied the history o medical technic. His guide is a history of the developmen of medical accessories and apparatus including the scalpel, the tourniquet, the forceps, the stethoscope, the thermometer and what not. The book also describes faithfully the anatomic preparations in the museum, Lister's instruments, the hands o several famous surgeons, and innumerable other objects o interest. For those who have visited the museum it is a memento of great value; others who read the little guide will impatiently await their first visit.

A TEXTBOOK OF THE PRACTICE OF MEDICINE. By Various Authors. Edited by Frederick W. Price, M.D., F.R.S., Consulting Physician to the Royal Northern Hospital. Third edition. Cloth. Price, $11.50. Pp. 1871, with illustrations. New York: Oxford University Press, 1929.

Since the first edition of this book, which appeared in September, 1922, there have been five reprintings of that edition and two of the second. Obviously it must have had an excellent sale. The third edition has been thoroughly revised. Many new articles have been added covering such subjects as vitamins, glandular disorders, electrocardiographic studies, and several unusual diseases of which much has been written in recent years. Following the announcement of new discoveries, changes in classification have been made. Yellow fever, phlebotomus fever and dengue have been moved from the section on spirochetal infections to that on infectious diseases of unknown etiology. Rickets is now classified as a deficiency disease. There have been complete rewritings and additions to articles on encephalitis, scarlet fever, malaria, syphilis and hyperthyroidism. This volume, to which many authors have contributed, is a good representative of modern clinical practice in the British Isles. Twenty-six leading practitioners are listed as contributors. Beginning with a general article on fever, infection and immunity, it covers immunotherapy, then various infections, tropical diseases, parasitic disorders, chemical and physical disturbances, metabolic disorders, and glandular, digestive and circulatory disturbances. Then come diseases affecting various systems and finally psychologic medicine. Unfortunately, the book is poorly printed, on poor paper with occasional smudging of type. The letters are small and the printing shows through the thin stock. In general the articles are of a high order. They are well written, systematic, easily followed and quite up to date. The therapy is simple, and the volume does not seem to have been written primarily to promote unestablished proprietaries, as has been the case with many other foreign systems. The general practitioner will find this one of the best ready reference books he can have at hand.

Medizinische Anthropologie: Eine wissenschaftstheoretische Grundlegung der Medizin. Von Dr. Oswald Schwarz, Privatdozent an der Universität Wien. Paper. Price, 13 marks. Pp. 383. Leipzig: S. Hirzel, 1929.

It should no doubt have been realized from the first that it is impossible to separate the science of medicine from all other sciences that deal with the structure, the life and the birth of man. Lately, however, it is being realized more and more that anthropology is one of the most fundamental of sciences with which medicine must be concerned. Schwarz has therefore prepared an outline of anthropology directed primarily to the physician rather than to the public. He begins by showing the relationship of medicine to other sciences. After discussing the diseases of man and the responsibility of man for carrying on human culture, he turns to the position of anthropology in the system of knowledge, the fundamental aspects of anthropology in relation to medicine, and the present tendencies of thought in the medicine of today. He recognizes the fact that medicine is turning more and more to the study of personality and of the individual rather than of mankind. He lists Bauer, the pathologist, Krehl and Freud as some of the greatest leaders in this modern movement. Indeed, he is inclined to call Freud the most advanced of all the modern leaders who are concerned with the progress of modern medicine.

Diseases of Women. By Ten Teachers under the direction of Comyns Berkeley, M.A., M.D., M.C., Obstetric and Gynæcological Surgeon to the Middlesex Hospital. Edited by Comyns Berkeley, H. Russell Andrews and J. S. Fairbairn. Fourth edition. Cloth. Price, $6 net. Pp. 558, with 184 illustrations. New York: William Wood & Company, 1930.

This edition shows considerable revision and improvement. Like previous editions, it is a collective effort of ten of the leading gynecologists of England. It is simply and tersely written, is well illustrated, and should be a valuable work for students in gynecology, including as it does a complete section on the principles of technic of gynecologic surgery. The chapters on ectopic pregnancy are well written and the work includes an excellent and important chapter on chronic ill health in women from the psychologic standpoint: neurasthenia in relation to pelvic disorders, a subject that American textbooks might do well to include. The American gynecologist will be surprised by the liberal use recommended for the uterine sound, the recommended methods of examination of discharges, the fact that general anesthesia is recommended for the Rubin patency test, and the absence of any mention of the cautery treatment of endocervicitis. Devoting a chapter each to acute and chronic endometritis is distinctly at variance with American teaching. However, the pleasing and informal style in which the entire book is written, together with the fact that it presents an accurate picture of British gynecology of today, should make this volume a desirable addition to the gynecologist's library.

Die Arten der Schlaganfälle des Gehirns und ihre Entstehung. Von Dr. Ph. Schwartz, a. o. Professor an der Universitat, Frankfurt a. M. Paper. Price, 48 marks. Pp. 269, with 150 illustrations. Berlin: Julius Springer, 1930.

A consideration of apoplexies in general based on the study of a large series of cases has long been needed to confirm or disprove many of the current theories of the mechanisms of the various types of cerebral vascular accidents. Schwartz has studied hundreds of cases and in his book illustrates his results graphically by means of many beautiful photographs. He considers the macroscopic and microscopic observations in hemorrhage associated with hypertension, in softening associated with arteriosclerosis, and in embolism. He has a complete discussion of the pathogenesis of these various types, comparing and contrasting them in great detail. His conclusions are based on a thorough study and should be read in original detail by all interested in cerebral vascular diseases.

Medicolegal

Mental Capacity Determinable by Physical Condition

(Love v. Love (Md.), 148 Atl. 814)

Margaret Love died, Nov. 2, 1928, aged nearly 96. Certain of her grandchildren who had received no recognition under the will contested it. Verdict and judgment were given in their favor on the issues of testamentary capacity and undue influence. The executor then appealed to the Court of Appeals of Maryland.

Dr. Taylor, who attended the testatrix, testified that she was incompetent to make a valid deed or contract on the day she executed the will. Under the well settled rule in Maryland, said the Court of Appeals, he was competent to express an opinion as to the mental capacity of his patient without giving any reasons for his opinion. On behalf of the executor, however, it was contended that Dr. Taylor disqualified himself, after expressing his opinion, by stating that that opinion was based on the physical condition of the testatrix; that he was unable to say whether she had sufficient mental capacity to make a gift; that there was nothing unusual or abnormal about her mental condition, except that she was a failing old lady; that he observed nothing to produce her condition of senile decay, except that she was feeble and failing in health; and that he was unable to say when, in a person suffering from arteriosclerosis, as he testified the testatrix was, the disease would interfere with the blood supply of the brain and lessen its functioning.

The question, said the Court of Appeals, is whether the discussion, on cross-examination, of the ground of the witness' opinion showed that opinion to be so lacking in foundation that it must be stricken from the record, on the motion of the executor, notwithstanding that it was properly admitted. The court held that it was not necessary to strike the opinion from the record. The opinion of the witness, said the court, was undoubtedly weakened, but we cannot say that it was nullified. The weight of it was for the jury to determine. So far as we know, said the court, it has never been held that physical deterioration may not reach a point where the brain ceases to function, although there may not be any specific mental disease. The rulings of the court below were therefore affirmed, and the case remanded.

Parke J., however, dissented. The only witness, he said, who expressed an opinion that the testatrix was incompetent when she made the will was the family physician, whose opinion was shown by his testimony in chief and by his cross-examination not to have been based on any evidence of mental incapacity, and consequently to be without probative force.

Estoppel of Patient to Deny Liability for Services

(Dempsey v. Angelette (La.), 125 So. 887)

The wife of the defendant, Angelette, became ill, and he employed the plaintiff, Dr. Dempsey, to treat her. Dr. Dempsey had treated Angelette and his family for a number of years. The patient did not respond to treatment, and in the early part of January, 1927, Angelette requested Dr. Dempsey to obtain the services of another physician. As the patient was suffering from nausea and vomiting, a stomach specialist was called in. According to the testimony of Angelette and his wife, when they suggested a consultant be summoned, they considered that Dr. Dempsey had given up the case. Nevertheless, after a consultation between Dr. Dempsey and the consultant, the patient was removed to the Touro Infirmary. She remained at the infirmary from January 1 until discharged, January 18, the stomach specialist having decided that the patient was suffering, not from stomach trouble, but from a goiter.

Dr. Dempsey, according to his testimony, continued to render services to the patient while she was in the hospital and thereafter, and later, on Angelette's request, he called in another consultant. This consultant recommended a surgeon who specialized in operations for goiter. The patient was again admitted to the Touro Infirmary, March 18, and after an operation by the surgeon selected was discharged, April 8.

Dr. Dempsey thereafter sued Angelette for $205, claimed as compensation for professional services rendered between Jan 2, 1927, the day after the patient was first taken to the Touro Infirmary, and April 9, 1927, the day following her discharge from the infirmary after she had been operated on. Angelette admitted an indebtedness of $60 but denied liability for the remaining $145. Judgment was rendered in favor of Dr. Dempsey, and Angelette appealed to the Court of Appeal of Louisiana, Orleans.

Angelette and his wife both denied that Dr. Dempsey had treated Mrs. Angelette during the period when she was in the Touro Infirmary. Angelette contended that Dr. Dempsey did not call regularly at the hospital to visit Mrs. Angelette and that when he did call, he, Angelette, was under the impression that it was merely a friendly visit. During both periods when the patient was in the infirmary, the specialist directed and administered all of the treatment that the patient received. Angelette contended, therefore, that he was not responsible to Dr. Dempsey for any visits he made; he considered that Dr. Dempsey turned the case over to the specialist on both occasions. Both the defendant and his wife admitted that they did not discharge Dr. Dempsey. Two physicians testified on behalf of Dr. Dempsey. One testified that it was the custom for the family physician to continue his services unless discharged. The other one testified that it was the custom for the family physician to continue his services if the family requested him to do so.

It appears, said the Court of Appeal, that the defendant did continue his services. While he may not have been solely in charge of the case, he cooperated with the specialists in treating the patient. Angelette, the defendant, at no time objected to Dr. Dempsey rendering such service. If he considered that Dr. Dempsey was no longer in the case, Angelette should have so informed him. It was too late to complain, said the court, after Angelette had received the benefit of Dr. Dempsey's services. The judgment of the trial court for the full amount, in favor of Dr. Dempsey, was affirmed.

Evidence: Dying Declarations.—Before a dying declaration can be admitted in evidence, the trial judge must be satisfied beyond a reasonable doubt that it was made under the realization and solemn sense of impending death. The declaration must be the utterance of a sane mind. It must be restricted to the homicide and the circumstances immediately attending it and forming a part of the res gestae. A declaration, or part of it, is not admissible unless it would be competent and relevant if it were the testimony of a living witness. Great caution should be observed in the admission of dying declarations, and the rules which restrict their admission should be carefully guarded. In this case it was shown that the declarant was of sound mind, that she realized what she was saying, that she had been dangerously wounded internally and that an operation had been performed, and that she did not evince the slightest hope of recovery. When she was making a statement concerning the circumstances under which she was wounded, she said: "I am going to die; I cannot get well; you need not worry about me." About twenty-four hours later, she died. Her dying declaration was held to have been properly admitted as evidence.—*Walton v. State (Miss.), 126 So. 29.*

Practice of Dentistry: Revocation of Licenses.—The Florida statute regulating the practice of dentistry (Acts of 1925, chapter 10109, sec. 18; C. G. L., 1927, sec. 3551) is penal in its nature. It must therefore be strictly construed and strictly followed. The statute authorizes the state board of dental examiners to revoke the license of any dentist shown to have been employing unlicensed persons to perform work which can lawfully be done only by persons licensed to practice dentistry in Florida. There is no provision in the statute for review by appeal or writ of error of the action of the state board of dental examiners revoking licenses, but in such cases, said the Supreme Court of Florida, Division B, it is well settled that mandamus will lie to consider the whole proceeding, wherein it may be determined by the court whether the action of the board will be sustained or the dentist restored to his right to practice dentistry. On a motion for a peremptory writ of mandamus, the court held that an accusation charging a licensed dentist with having violated the dental law of the state, by employing an unlicensed person and allowing that person to practice dentistry in his office, failed to charge the dentist with having committed any act which under the provisions of the statute constituted grounds for the revocation of his license to practice dentistry. The most the evidence showed was that a person not licensed to practice dentistry had on two occasions performed, in the office of the dentist whose license had been revoked, some service which could lawfully be done only by a person licensed to practice dentistry, but there was no evidence that the dentist in whose office he had performed such service had employed him or that he had directed the unlicensed person to perform the work. The board was without authority to consider and act on charges other than those contained in the accusation served. A peremptory writ of mandamus was issued.—*State ex rel. Jordan v. Pattishall et al., State Board of Dental Examiners (Fla.), 126 So. 147.*

Workmen's Compensation Acts: Compensability for Death by Lightning.—It is the settled law in Minnesota that the death of an employee caused by lightning is compensable only when by reason of employment he is so exposed to injury by lightning as necessarily to accentuate the natural hazard and when the accident is incident to his employment. *The employment must expose the employee to the hazard in* some way peculiar to it, so that he does not stand in relation to the hazard in only the same way as the public generally. The Industrial Commission, and later the Supreme Court of Minnesota, was asked to take judicial notice of statements by an expert on the phenomena of electricity and lightning, concerning the relative chances of objects at different heights being struck, and it was insisted that the chance of the deceased workman being struck was enhanced by the fact that he was with large horses on the highway, with no other large objects above the ground.

We may take judicial notice, said the Supreme Court of Minnesota, of that which may be regarded as common knowledge of every person of ordinary intelligence; that is, of that which is or ought to be generally known. We do not take judicial notice of things which are not of common and general understanding. We may take judicial notice of scientific facts which universal experience has rendered axiomatic; that is, generally recognized scientific facts. The doctrine should be extended, where it may reasonably be accepted, rather than restricted; yet we cannot take judicial notice of such facts as are known, if at all, only by a specially informed class of persons. We may take notice of the use of lightning rods and that they are to some extent effectual within their immediate area, but to go to the extent now asked would take us into the field known only, if at all, to the scientist and the technician. The rule does not permit that. The Industrial Commission properly rejected the application of the doctrine of judicial notice in this case.—*Lickfett v. Jorgenson et al. (Minn.), 229 N. W. 138.*

Society Proceedings

COMING MEETINGS

American Academy of Physical Therapy, Boston, November 12-14. Dr. Thomas L. Smyth, 111 North Eighth Street, Allentown, Pa., Secretary.
American Association of Railway Surgeons, Chicago, November 5-7. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.
Central States Pediatric Society, Memphis, Tenn., November 7-8. Dr. A. H. Parmelee, 310 South Michigan Boulevard, Chicago, Secretary.
Medical and Surgical Association of the Southwest, El Paso, Texas, November 6-8. Dr. W. Warner Watkins, Box 1587, Phoenix, Ariz., Secretary.
Radiological Society of North America, Los Angeles, December 1-5. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.
Southern Medical Association, Louisville, Ky., November 11-14. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.
Southern Surgical Association, Lexington, Ky., December 9-12. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.
Western Surgical Association, Kansas City, Mo., December 5-6. Dr. Frank R. Teachenor, 306 E. Twelfth St., Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

40: 465-704 (Sept.) 1930

*Metabolism Studies in Nephrosis: Relationship of Protein Intake to Nitrogen Retention, Edema and Albuminuria. D. M. Cowie, K. M. Jarvis and M. Cooperstock, Ann Arbor, Mich.—p. 465.

*Heliotherapy and Peripheral Blood. G. Hoeffel and D. Lyons, Boston.—p. 484.

*Diagnostic Value of Sodium Fluorescein in Epidemic Cerebrospinal Meningitis. B. E. Bonar, Salt Lake City, and L. G. Bailey, Millwood, Wash.—p. 493.

*Acute Suppurative Thyroiditis in Children: Operative Recovery. J. M. Mora, Chicago.—p. 500.

New Infant Feeding Chart. R. W. Teed, Owosso, Mich.—p. 503.

*Differential White Count in Infancy: Comparison by Supravital and Fixed Smear Methods. C. H. Smith, New York.—p. 505.

*Sepsis with Leukopenia (Agranulocytosis) in Children: Ten Cases. J. A. Bigler and J. Brennemann, Chicago.—p. 515.

Preparation of Dextrose for Parenteral Injection. F. F. Schwentker, Baltimore.—p. 533.

*Problem of Dental Caries. R. W. Bunting, F. P. Hadley, P. Jay and D. G. Hard, Ann Arbor, Mich.—p. 536.

*Diffusible Blood Serum Calcium in Normal New-Born Infants. H. H. Ray and N. M. Phatak, San Francisco.—p. 549.

*Pneumonia in Children. N. Plummer, A. Raia and S. Shultz, New York.—p. 557.

*Nitrite Reaction as Diagnostic Test in Influenzal Meningitis. R. M. Greenthal, Milwaukee.—p. 569.

Congenital Atresia of Bile Ducts: Case. A. Matheson and I. H. Tumpeer, Chicago.—p. 571.

*Infectious Mononucleosis. J. P. Price, Florence, S. C.—p. 581.

Gonorrheal Rhinitis. R. T. Miller, Boston.—p. 588.

Psychiatric Aspects of Enuresis. F. N. Anderson, Los Angeles.—p. 591.

William Heberden the Elder, 1710-1801. J. Ruhrah, Baltimore.—p. 619.

Relation of Protein Intake to Nitrogen Retention and Albuminuria in Nephrosis.—A case of chronic glomerular nephritis in a child whose condition, under observation, passed into the so-called nephrotic subgroup of glomerular nephritis is presented by Cowie et al. These studies demonstrate that, in this case of nephrosis in a child characterized by a high metabolic rate, a protein intake sufficient to induce a positive nitrogen balance of from 1 to 3.76 Gm. was necessary and sufficient to keep the patient edema-free. This amount of protein caused a marked diminution of the urinary albumin but it did not cause the albumin to disappear after a continuous edema-free period of eleven months. A blood protein content of 5 Gm. was necessary before the patient became permanently edema-free. At one time the patient was edema-free when the serum protein was 3.8 per cent. In. studies of nitrogen balance the actual chemical estimation of the nitrogen in the stool is shown to be necessary.

Heliotherapy and Peripheral Blood.—Hoeffel and Lyons are of the opinion that there is no justification for the belief that light rays, considered either collectively as including the entire spectrum or individually as ultraviolet rays, have any specific effect on the blood. The effect of light on the healing of a pathologic process, such as tuberculosis, cannot be distinguished from that exerted by other factors the beneficial influences of which are well recognized.

Diagnostic Value of Sodium Fluorescein in Epidemic Meningitis.—A study of the value of sodium fluorescein as a diagnostic agent in epidemic cerebrospinal meningitis is presented by Bonar and Bailey with observations in thirty-three examinations in twenty-one cases. Ingested or injected sodium fluorescein permeated the meningeal barrier in all but two uncured patients with clinically and bacteriologically diagnosed epidemic cerebrospinal meningitis. A probable explanation for the failure of the test in these two patients is proffered. The test is of value in the differentiation of epidemic cerebrospinal meningitis from other diseases in which sometimes there are manifestations of meningeal irritation, such as pneumonia, erysipelas, spasmophilia, encephalitis, tumor of the brain and tetanus. The presence of small amounts of blood does not invalidate the test, which makes it especially valuable in the diagnosis of meningitis.

Acute Suppurative Thyroiditis in Children.—Two cases of acute suppurative thyroiditis in children, aged 2½ and 13 years, with operative recovery, are recorded by Mora. In both cases the primary infection was a sore throat, and in both instances the offending organism was a hemolytic streptococcus.

Differential White Count in Infancy.—The differential blood count of thirty-seven normal and sick infants was studied by Smith from a supravital preparation and from fixed smears, and the observations were correlated. In forty-three of forty-eight comparative smears, the percentage of polymorphonuclear leukocytes was higher, and that of lymphocytes was lower in the living preparation than in the fixed film. The average of twenty-four counts from the group of normal infants showed the proportion of polymorphonuclear neutrophils to be 8.6 per cent higher in the supravital than in the fixed cover-slip smear and almost 12 per cent higher than in the slide. The lymphocytes, on the other hand, ran 14 per cent and 11 per cent higher in the fixed smear of the slide and cover-slip, respectively, than the corresponding cells of the supravital preparation. The principal reasons for this discrepancy are unequal distribution of the cells and, especially, failure to identify and include all fragmented polymorphonuclear leukocytes in the differential count of the fixed smear. With the supravital technic, the spread of cells is more even, trauma is reduced, and both motile and dying cells may be more readily identified. In pyogenic infections, especially when associated with a leukocytosis, the differential count from the fixed smears gives at times a much lower polymorphonuclear and a higher lymphocyte percentage than expected. That this discrepancy is often due to an increased fragility of the polymorphonuclear leukocytes is evident from comparative supravital studies. In a routine differential count from the fixed smear, particularly when it is employed as an index of the patient's resistance, the extent of white cell damage encountered on the slide should be noted. If fragmented cells have been included in determining the individual cell percentages, mention of this fact should also be made.

Sepsis with Leukopenia in Children.—Ten cases of the clinical syndrome of a sepsis, with severe anemia, thrombopenia and agranulocytic leukopenia are reported by Bigler and Brennemann. Their relationship to aleukemic leukemia, aplastic anemia, agranulocytic angina and other conditions is discussed.

Problem of Dental Caries.—Evidence is given by Bunting et al. in support of the view that dental caries is a specific infective process the activity of which is dependent on certain metabolic states. As the result of dietary and therapeutic experiments, active dental caries was reduced to a negligible quantity in 433 children. Of the methods employed, dietary measures appeared to be the most important. The diets prescribed for the control of dental caries were well balanced, well fortified, adequate rations in which sugar was reduced to the minimum.

Diffusible Blood Serum Calcium in New-Born Infants.—Studies of calcium partition in the blood serum of fifty new-born infants, ranging from 5 to 22 days in age, are reported by Ray and Phatak, together with determinations of the serum inorganic phosphates, chlorides and protein fractions and the whole blood cholesterol. The total serum calcium, as determined in thirty-two cases, averaged 11.4 mg. per hundred cubic centimeters of serum. The average diffusible serum calcium, as estimated in forty-two determinations, was 5.3 mg., or 46.7 per cent. The nondiffusible calcium averaged 6.2 mg., or 53.6 per cent, in thirty-one determinations. No significant statistical correlation could be found between the total or diffusible calcium and the inorganic phosphates, protein fractions, chlorides or cholesterol. A chart is presented showing the frequency distribution of the total calcium, the diffusible calcium in the serum and the diffusible calcium in the filtrate. It is suggested that studies of calcium partition are of definite use in the interpretation of any clinical condition involving calcium disturbance.

Pneumonia in Children.—The cases of 147 patients with pneumonia admitted to the children's medical division of Bellevue Hospital from Nov. 1, 1928, to April 30, 1929, were studied clinically and bacteriologically by Plummer et al. A control series of 161 children was studied at the same time and by the same bacteriologic methods. The accuracy of the throat swab method of typing is shown by a series of thirty-seven cases in which cultures were obtained from the sputum, blood, ear exudate, chest fluid or specimens procured by postmortem puncture of the lung or at autopsy. The unclassified group in the 147 cases of pneumonia was reduced from 81.6 to 49.7 per cent by the separation of the ten new types of Cooper, Edwards and Rosenstein. The incidence of types in the 147 cases of pneumonia in children is tabulated. The incidence of types in the 161 control children, seventy-two of whom had respiratory infections but not pneumonia, is tabulated; 73 per cent had pneumococci in the throat; 29 per cent had one of the fixed types, and 44 per cent had unclassified strains. The incidence of types according to age is recorded. The incidence of pneumonia in general is high in the first year and drops rapidly after that. A higher incidence of the fixed types was found after the first year. The cases are classified according to clinical diagnosis. There was a predominance of types I, II, IV, VII and IX in the cases of lobar pneumonia and a high incidence of type VI in the cases of bronchopneumonia. The mortality rate in the 147 cases of the series is 17.7 per cent, and the variation according to type is reported.

Nitrite Reaction as Diagnostic Test in Influenzal Meningitis.—A positive nitrite reaction with the spinal fluid was obtained by Greenthal in thirteen consecutive cases of influenzal meningitis, and was always absent in meningococcic, tuberculous and streptococcic meningitis. The nitrite test, according to the method described, may be used as a rapid corroborative test for the diagnosis of influenzal meningitis.

Infectious Mononucleosis.—A case of infectious mononucleosis in a baby, aged 7 months, is reported by Price with a general discussion of the disease. Especial reference is made to the difficulty in diagnosis between infectious mononucleosis and acute lymphatic leukemia in the early stage.

American Journal of Public Health, New York

20: 925-1054 (Sept.) 1930

Pan-American Sanitary Bureau. B. J. Lloyd, Washington, D. C.—p. 925.
How the Nurse Can Help Health Officer to Get His Message Across: From Standpoint of City. H. F. Vaughan, Detroit.—p. 930.
Animal Infections with Bacteria of Genus Brucella and Relation to Undulant Fever of Man. J. Traum, Berkeley, Calif.—p. 935.
Mental Hygiene in Public Health Program. J. L. McCartney, Hartford, Conn.—p. 943.
Pulmonary Tuberculosis in Students. L. H. Ferguson, Cleveland.—p. 955.
Physical Measurements of One Thousand Smith College Students. F. F. Gordon, Greensboro, N. C.—p. 963.
Tuberculous Patients in New Jersey Sanatoriums. E. Frankel and H. E. Heyer, Trenton, N. J.—p. 969.

Archives of Internal Medicine, Chicago

46: 361-552 (Sept.) 1930

*Digestion: Efficiency with Various Foods and Under Various Conditions. J. H. Childrey, W. C. Alvarez and F. C. Mann, Rochester, Minn.—p. 361.
*Addison's Disease in a Negro: Case. A. M. Sala and M. Jacobi, New York.—p. 375.
Chemistry and Metabolism in Experimental Yellow Fever in Macacus Rhesus Monkeys: II. Nitrogen Metabolism. A. M. Wakeman and C. A. Morrell, New Haven, Conn.—p. 382.
Hazard of Incision for Apparent Quinsy in Diphtheria. J. E. Gordon and D. C. Young, Detroit.—p. 402.
*Demonstration of Local Immunity of Peritoneum by Means of Shwartzman Phenomenon. I. A. Frisch, New York.—p. 410.
*Pernicious Anemia: Blood Regeneration During Early Remission. M. C. Riddle, Portland, Ore.—p. 417.
*Red Blood Cell Size in Anemia: Value in Differential Diagnosis. W. P. Murphy and G. Fitzhugh, Boston.—p. 440.
*Iron Metabolism in Pernicious and Secondary Anemia. H. H. Riecker, Ann Arbor, Mich.—p. 458.
*Significance of Electrocardiogram with Large Q in Lead 3. H. E. B. Pardee, New York.—p. 470.
*Modification of Dextrose Tolerance Test as Index of Metabolic Activity of Liver. T. L. Althausen, L. Gunther, J. B. Lagen and W. J. Kerr, San Francisco.—p. 482.
*Renal Damage Following Administration of Merbaphen (Novasurol): Nine Cases. D. H. Sprunt, New Haven, Conn.—p. 494.
*Transfusion from Group II (A) Donor to Group III (B) Recipient Without Fatal Result. L. Burnham, New York.—p. 502.
*Parathyroid Tumor and Changes of Bones. I. Snapper, Amsterdam, Holland.—p. 506.
*Experimental Gastric Ulcer: Effect of Consistency of Diet on Healing. G. B. Fauley and A. C. Ivy, Chicago.—p. 524.
Life of Reticulocytes: Experiments on Maturation. C. W. Heath and G. A. Daland, Boston.—p. 533.

Digestion: Efficiency with Various Foods and Under Various Conditions.—The amount of residue obtained after the digestion of various foods has been studied by Childrey et al. in six dogs, all deprived of the colon. The foods best digested were meat, rice, dextrose and fat in small amounts. These foods might well be used in the treatment of patients with diarrhea and in the preoperative or postoperative care of patients with serious diseases of the colon, rectum or anus. The combining of certain foods such as bread and milk and raw egg and milk, improved the digestion of both substances. Lactose, when given in considerable amounts, proved to be a laxative that interfered not only with the digestion of food eaten the same day but also with the digestion of food eaten the following day. Cheese and lard given one day also interfered with the digestion of food eaten the following day. Meat was better digested when given in lumps than when given finely comminuted. The same was true of Swiss cheese. Raw meat was better digested than cooked meat. Except in the case of a few foods, it was difficult to give enough so that the efficiency of digestion would fail. The dog usually protected himself by vomiting part of the meal. Raw egg when not mixed with other foods was highly indigestible. Raw cornstarch given alone was almost completely indigestible. The addition of lemon juice to food hurried the progress of residue through the bowel and interfered somewhat with the efficiency of digestion. Orange juice had little effect on digestion. Pie crust did not seem to be much more indigestible than white bread. It was more digestible than graham bread. Anxiety and excitement influenced adversely the efficiency of digestion. Food when taken in one large amount was better utilized than when taken in several fractions at half-hourly intervals. Apparently each feeding stimulated peristalsis and caused the food to pass too rapidly through the bowel. Purgatives, sodium bicarbonate and barium sulphate interfered with digestion. Morphine slowed the progress of material through the bowel. It had little effect on the digestion of ground cooked meat, given at the same time, but it interfered with the digestion of meat given the next day.

Addison's Disease in a Negro.—The fifth case of Addison's disease in a Negro, with necropsy observations, is recorded by Sala and Jacobi. The other recorded cases are reviewed. A comparison is made with the disease in white persons. The difficulty of diagnosis and the prominence of symptoms not usually stressed in white people are emphasized. The laryngeal and respiratory symptoms are stressed particularly.

Local Immunity of Peritoneum and the Shwartzman Phenomenon.—A modification of the phenomenon of local skin reactivity introduced by Shwartzman is described by Frisch. This modification consists in the employment of an intraperitoneal instead of an intravenous injection of toxic substance twenty hours after such a preliminary inoculation into the skin. By means of this modification, the principle of local peritoneal immunity was demonstrated. Rabbits in which the intraperitoneal injection of *Bacillus typhosus* culture filtrate was able to elicit the Shwartzman phenomenon in previously prepared skin sites were rendered negative to this phenomenon by repeated injections of this culture filtrate intraperitoneally. It was then shown that this skin reaction could still be produced if the reacting factors were introduced intravenously. It must thus be concluded that the immunity produced under these circumstances was of a distinctly local character involving only the peritoneum, and that the entire organism was not yet immune. It was also determined that between three and four injections of *B. typhosus* culture filtrate were necessary to render the peritoneum immune to this filtrate.

Blood Regeneration During Remission in Pernicious Anemia.—From evidence collected from a group of sixty-eight patients with pernicious anemia undergoing remission as a result of liver treatment and from a consideration of the theoretical factors that influence blood regeneration under these circumstances, Riddle concludes that the magnitude of the reticulocyte response is governed directly by the extent of the bone marrow hyperplasia during relapse, and that the rate of the reticulocyte response is governed directly by the dosage of the active principle contained in liver. As the magnitude and the rate of the reticulocyte response are to a certain extent interdependent, the condition of the bone marrow apparently influences indirectly the rate of the response, and the dosage of liver used influences indirectly the magnitude of the response. For four patients whose collected data were satisfactory for mathematical analysis, the blood regeneration was formulated according to an equation used by Robertson to express a general law of biologic growth and regeneration. When the rate at which the reticulocytes in the blood of these patients were transformed into mature erythrocytes was estimated by this equation, the curve representing the concentration of reticulocytes during the reticulocyte response could be duplicated mathematically. It was estimated that in these patients two days was required for the differentiation of reticulocytes in the blood into mature erythrocytes. In two other patients in whom the stimulus to regeneration of blood was less intense, it was estimated that between three and four days was required for the maturation of reticulocytes in the blood to their mature form. A correlation of the relative maturity of the reticulocyte with the amount of reticular material it contained showed that, under the circumstances present, reticulocytes containing small amounts of reticular material disappeared during the following day. When the amount of reticular substance in a reticulocyte was used as a standard for estimating its degree of maturity, it was found that during the early part of the reticulocyte response reticulocytes were liberated in an earlier stage of development than toward the end of the response. The rate at which reticulocytes are liberated from the bone marrow into the blood appears to be a factor of importance which influences the rate and magnitude and velocity of the reticulocyte response. The rate of the liberation of the reticulocytes into the blood seems to be proportional to the rate at which they are formed from the more primitive red blood cells within the bone marrow and to the numbers of reticulocytes being formed there. An increase of a million red blood cells per cubic millimeter of blood is accompanied by an excretion of approximately 10 Gm. of endogenous uric acid in patients with pernicious anemia during early remission.

Size of Red Blood Cells in Anemia: Value in Diagnosis.—The determination of the individual cell volume as suggested by Haden and as recorded by Murphy and Fitzhugh is a more simple means of determining the average cell size than is the measurement of the mean cell diameter. Determinations of the individual cell volume are helpful in differentiating pernicious anemia from other anemias in most instances in which difficulty in diagnosis might arise, the main exception being in the rare condition called aleukemic leukemia. During and shortly following acute loss of blood there is an increase in the average individual cell volume, whereas in anemia resulting from chronic loss of blood the individual cell volume is generally low. Figures presented suggest that with adequate liver therapy the red blood cells of patients with pernicious anemia return to normal volume. An individual cell volume figure greater than normal should indicate inadequate treatment. Not only is the method for determining the individual cell volume a simple one to use, but the information so obtained is also as reliable as is that obtained by measurement of the mean diameter of the red blood cells by the method used.

Iron Metabolism in Pernicious and Secondary Anemia.—There is present in blood serum a partly diffusible iron compound the estimation of which, Riecker says, may be used to determine the presence and degree of iron starvation in disease and likewise the effect of iron medication. The amount of serum iron is increased in hemolytic diseases of the blood and decreased in the presence of long continued hemorrhage or a dietary deficiency of iron. In pernicious anemia, the level of the serum iron usually is higher than normal but becomes normal during remissions in the disease. A remission in pernicious anemia is accompanied by an increase in excretion over the intake of iron, as determined by analyses of stool and urine. In secondary anemia, one rarely finds as marked iron starvation as in experimental hemorrhage in animals on a diet low in iron, and from this standpoint alone the indications for medicinal iron are limited.

Electrocardiogram with Large Q in Lead 3.—Attention is directed by Pardee to the occurrence of records showing left axis deviation of Q-R-S or a normal electrical axis, combined with a large Q wave in lead 3, one that is 25 per cent or more of the largest deflection of Q-R-S in whichever lead this may occur. The majority of such records are obtained from patients with the anginal syndrome, but certain patients with myocardial fibrosis and congestive failure, certain patients with rheumatic heart disease, especially with pericarditis, and a few with hypertension will give such records. Certain patients who have cardiac symptoms but no definite evidence of cardiac disease have been found to show this large Q_3, and rarely (twice in 277 cases) such records are obtained from apparently normal hearts. These records show a clockwise rotation of the vectors of the Q-R-S group, and frequently there is an inversion of T_3 or of T_2 and T_3. Both of these features depend on right ventricular activity, and it is suggested that the finding of a large Q_3 indicates disease of the left ventricle, so that the right ventricle predominates during the spreading of the contraction in spite of the left axis deviation or normal axis direction of Q-R-S. The effect of diaphragmatic movements on the large Q_3 is noted, and it is suggested that the occasional finding of a large Q_3 in normal hearts may be due to an unusual distribution of the branches of the auriculoventricular bundle and that a high position of the diaphragm may be a contributory factor.

Modification of Dextrose Tolerance Test as Index of Metabolic Activity of Liver.—Evidence is presented by Althausen et al. to show the value of the modified dextrose tolerance test as a metabolic liver function test. The test possesses the following advantages: (*a*) It is simple and requires no especial equipment. (*b*) It is harmless to the patient. (*c*) Unlike the levulose and galactose tolerance tests, it is reliable not only in disease groups but also in individual cases. (*d*) It brings out latent functional impairment of the liver and permits one to follow the progress of the disease. (*e*) It checks well with the results of the rose bengal test. (*f*) As a metabolic test, its results are probably independent of biliary obstruction. (*g*) In combination with a dye excretion test, it offers valuable diagnostic aid in toxic cirrhosis of the liver. The chief limitation of the modified dextrose tolerance test is its inaccuracy in cases of diabetes mellitus with marked morning hyperglycemia.

Renal Damage Following Administration of Merbaphen.—Among 741 necropsies, Sprunt found nine instances in which the patients received merbaphen during the clinical course of their illness. In three of these cases, extensive necrosis of the renal epithelium was observed. Attention is drawn to the fact that in one case merbaphen was given under circumstances adverse to its use, while in two cases conditions which may be considered as counterindications were also present.

Transfusion from Group II (A) Donor to Group III (B) Recipient Without Fatal Results.—Burnham reports a case in which a full transfusion, 400 cc., into a recipient weighing but 85 pounds (38.6 Kg.) of group II (A) blood into a group III (B) recipient was accidentally performed, with only slight symptoms: coughing, oppression in the chest, slight dizziness and pain in the lumbar regions. The incompatible transfused blood remained in the circulation of the recipient from three to five days. The absence of serious consequences was shown to be due to the fact that all of the group-specific isoagglutinin a in the recipient's serum was entirely incapable of clumping the group II (A) cells of the donor at body temperature, although it clumped these cells vigorously at room temperature.

Parathyroid Tumor and Changes of Bones.—The following points were noted by Snapper in a patient suffering from extensive decalcification of the bones, combined with violent pain: 1. The illness began as osteitis fibrosa generalisata. Therefore there existed a pseudo-osteomalacic end-stage of Recklinghausen's disease. 2. There was a great increase in the calcium content of the serum. The deviation was considered to be a symptom of hyperfunction of the parathyroids. 3. There was a *small swelling in the thyroid. On account of these facts,* a tumor of a parathyroid gland was suspected, and it was found during operation. After extirpation of this small tumor, clinical recovery occurred.

Experimental Gastric Ulcer: Effect of Consistency of Diet on Healing.—A simple ulcer of the rabbit's stomach (from 1.5 to 2 cm. in diameter) produced by excision, Fauley and Ivy state, heals within thirty days, irrespective of the consistency of the diet. A similar ulcer, but with a silk suture in its base, will heal if the rabbit is fed a soft diet but will tend to become chronic if the rabbit is fed a rough diet. They have confirmed Ferguson's observation that, if an acute lesion is made by this method and the rabbits are kept on a rough diet, a chronic ulcer results in numerous instances. The consistency of the diet has an influence on the healing of an ulcer of the stomach, if other factors that tend to delay the healing are operating simultaneously. These results indicate that in chronic ulcer in man a soft diet would facilitate the healing of the ulcer, which confirms clinical experience and supports the use of a diet of the character of that employed in the generally accepted therapeutic procedures for gastric ulcer.

Archives of Pathology, Chicago

10: 349-498 (Sept.) 1930

Lesions in Experimental Amebic Dysentery. D. L. Martin, Tacoma, Wash.—p. 349.
*Basal Cell Carcinoma. M. Owen, Fort Worth, Texas.—p. 386.
*Neuromuscular Changes in Amyelia and Relation to Those of Congenital Clubfoot. R. J. Dittrich, Wichita, Kan.—p. 395.
*Changes of Spleen in Subacute Bacterial Endocarditis. H. Fox, Philadelphia.—p. 402.
Effect of Certain Toxic Substances in Bacterial Cultures on Movement of Intestines. E. E. Ecker and B. J. Wolpaw, Cleveland.—p. 407.
Juvenile Arteriosclerosis. P. Zeek, Cincinnati.—p. 417.
New Method of Decalcification. N. Evans and A. Krajian, Los Angeles.—p. 447.

Basal Cell Carcinoma.—Owen's observations of 836 cases do not indicate that true basal cell carcinoma may occur on the mucous membrane. The review lends weight to the contention that carcinomas having their origin on the mucous membrane lack that low grade of malignancy which the basal cell carcinomas that are situated on the skin possess. It would seem rather hazardous to diagnose as basal cell carcinoma a tumor having its origin from the basal cell layer of the mucous membrane when there are present metastasis and rapid extensive growth consisting chiefly of undifferentiated cells or cells showing squamous characteristics. This tumor seems to be a squamous cell carcinoma.

Neuromuscular Changes in Amyelia and Relation to Those of Congenital Clubfoot.—A study made by Dittrich of the muscles of the lower extremities in a case of amyelia indicates that the muscular alterations are similar to those found in congenital clubfoot, with the exception that the changes are not so far advanced. The appearance of the sciatic nerves in amyelia is similar to that of the nerves in congenital clubfoot, with the addition, in the former, of a marked degree of hyperemia. The relationship of the spinal canal in amyelia to the spinal cord indicates that the primary defect of development is that of the bony portions of the spine.

Changes of Spleen in Subacute Bacterial Endocarditis.—The principal features of the spleen in subacute bacterial endocarditis of the *viridans* type found by Fox were as follows: The most important gross lesion is the infarct. Practically every case shows perisplenitis whether an infarct exists or not. In early stages the organ is not greatly enlarged but suggests a soft splenic tumor of the congestive type. In the later stages the organ is definitely enlarged as the result of hyperplasia of its constituent tissue and the inflammatory and hyperplastic changes incident to infarctions. Hyperplasia of lymphatic elements proper is not a feature of this disease; on the contrary, those tissues are inactive. Hyperplasia of cells of the reticulo-endothelial series is not seen early but appears more evident in the cases of longer duration. Marked changes of the linings of blood vessels are not especially peculiar to this disease. Evidences of destruction of blood are missing in early but are present in older cases. Degenerations and coagulation within germ centers are frequently observed. Structures suggesting Bracht-Wächter bodies have been seen several times. Clasmatocytes are occasionally seen, but rarely in any numbers. Polymorphonuclear neutrophils are prominent, as revealed in spleens of this series of cases of bacterial endocarditis. Eosinophils are also frequently seen.

Assn. American Medical Colleges Journal, Chicago

5: 257-319 (Sept.) 1930

*Correlation of Qualifying Examinations. W. L. Bierring.—p. 257.
Strip Film Photography as Aid in Medical Teaching. F. R. Krusen, Philadelphia.—p. 262.
A Great Adventure. W. Darrach, New York.—p. 267.
*Experimental Method in Modern Medicine. B. P. Babkin, Montreal.—p. 271.
Survey of Medical Schools of United States Relative to Teaching of Diseases Due to Allergy. R. M. Balyeat, Oklahoma City.—p. 276.
Some Medical Problems Ahead. W. C. Rappleye, New Haven, Conn.—p. 281.
Language Culture in Teaching of Medicine. G. deTarnowsky, Chicago.—p. 288.
Educational Rôle of Modern Hospital. F. L. Babbott, Jr., New York.—p. 289.

Correlation of Qualifying Examinations.—Bierring suggests the acceptance of the National Board examination by the medical schools. This would apply only to the written tests in the fundamental medical and clinical sciences.

Experimental Method in Modern Medicine.—Babkin believes that the best way to introduce the experimental method into practical medicine would probably be to train young medical graduates, especially those whose aim is an academic career in medicine or surgery, for a couple of years in the biologic laboratories. By this is meant not so much technical training in some of the biologic sciences—physiology, biochemistry, pharmacology—as the acquisition of a certain mental attitude toward theoretical and practical medical problems. A "scientific" point of view on phenomena under observation, and "scientific" treatment of such, cannot be acquired from books. Only actual research work in a laboratory, and continuous and strenuous mental effort directed toward the solution of certain experimental problems, will teach a young man how to deal scientifically with them. At the present time an attempt is being made in that direction at McGill University by the creation of a scheme of "Experimental Surgery" (supported by the Rockefeller Foundation). Young surgeons, who have proved themselves capable in that branch of medical science, enter one of the biologic laboratories (physiology, biochemistry or pharmacology) and work there for two years as research students conducting experiments, many of which involve operative procedures on animals. They will return afterward to the university surgical clinic, where it is hoped that they will retain and foster within themselves the experimental spirit which they acquired in the laboratories.

California and Western Medicine, San Francisco

33: 625-696 (Sept.) 1930

Hypochloremia. G. M. Curtis, Chicago.—p. 625.
Aspiration in Tonsillectomy: Comparative Merits of Posture and Other Factors. H. J. Hara, Los Angeles.—p. 628.
Resuscitation of New-Born. K. L. Schaupp, San Francisco.—p. 638.
*Extract of Suprarenal Cortex Substance. W. B. Coffey and J. D. Humber, San Francisco.—p. 640.
Basic Principles Involved in Modern Controllable Spinal Anesthesia. F. I. Harris and E. Bolze, San Francisco.—p. 652.
Amebic Abscess of Liver: Treatment. E. D. Kilbourne, Santa Ana.—p. 658.
*Carotinemia. H. E. Miller, San Francisco.—p. 662.
Destructive Calculus Disease. F. Farman, Los Angeles.—p. 663.
Traumatic Shock: Newer Aspects and Treatment. G. K. Rhodes and C. McKenney, San Francisco.—p. 665.
Psychoneurotic Patient and Clinician. W. H. Barrow, San Diego.—p. 670.
Lure of Medical History: Sixteenth Century German Medicine. S. L. M. Rosenberg, Los Angeles.—p. 673.
Problem of Skin Graft: Newer Technic. H. L. Updegraff, Hollywood.—p. 679.
Improvised Darkfield Apparatus. S. E. Light, San Francisco.—p. 681.

Extract of Suprarenal Cortex Substance.—Coffey and Humber discuss in detail their work with suprarenal cortex extract. Under the auspices of the Better Health Foundation of California they intend to carry on a constructive five-year program of scientific research. The Better Health Foundation of California is a nonprofit corporation and was organized to carry on work for the extension of scientific research and other worthy purposes. To obtain the best results it has been decided that the future distribution of their extract for research work to cooperating physicians, clinics or hospitals will be made available through the Better Health Foundation, because in that way improper claims or commercial exploitation of the extract may be better prevented.

Carotinemia.—Miller reports three cases. The first patient with a severe generalized, allergic dermatitis developed a yellow discoloration of the skin of the entire body while eating raw carrots and other vegetables. The second patient, with an ill defined gastric complaint, was diagnosed as having gallbladder disease because the yellow color of her skin was thought to be due to bile pigments. The third patient sought medical care because of the embarrassment of the dirty, yellow color of her palms.

Canadian Medical Association Journal, Montreal

23: 333-476 (Sept.) 1930

Factors in Delivery of Medical Services. W. C. Rappleye, New Haven, Conn.—p. 341.
*Detection of Insular Hormone in Duodenum. N. B. Laughton and A. B. Macallum, London, Ont.—p. 348.
Problem of Thyroid Intoxication. R. R. Graham, Toronto.—p. 349.
*Sclerosis and Occlusion of Coronary Arteries. O. Klotz and W. Lloyd, Toronto.—p. 359.
Coronary Thrombosis. R. W. Scott, Cleveland.—p. 366.
Heart Disease in Middle Life. A. J. MacKenzie, Toronto.—p. 370.
*Sickle-Cell Anemia: Case. J. B. Scriver and T. R. Waugh, Montreal. —p. 375.
Birth Traumatism as Factor in Urinary Infection. F. S. Patch, Montreal.—p. 381.
Rational Surgical Treatment of Chronic Antral Disease. J. G. Hunt, London, Ont.—p. 386.
*Multiple Adenopapillomata of Stomach: Case Showing Varying Degrees of Malignancy. F. D. Ackman, Montreal.—p. 391.
Acute Intestinal Obstruction Involving Appendix. A. L. Lockwood, Toronto.—p. 400.
Shoulder Pain: Consideration of Some Easily Overlooked Causes. A. Gillies, Toronto.—p. 402.
Postoperative Nausea. W. B. Burnett, Vancouver.—p. 406.
Hand Injuries and Compensation. E. St. Jacques, Montreal.—p. 410.
Flavoring of Expectorant Mixtures. J. F. Johnston, Toronto.—p. 412.
Intravenous Pyelography. A. Laroche, Montreal.—p. 414.
Rupture of Aorta. C. J. Tidmarsh, Montreal.—p. 416.
Sarcoma Botryoides Corporis Uteri: Case. P. J. Kearns, Montreal.—p. 418.
Lymphosarcoma of Widespread Involvement and Rapid Termination: Case. P. W. Head, Birtle, Man.—p. 419.
Epilepsy. G. F. Boyer and W. W. Barraclough, Toronto.—p. 420.
Nauheim Treatment and Carbon Dioxide Foam Baths. L. Shillito.—p. 423.
Clinical Notes in Ophthalmology. L. Kazdan, Toronto.—p. 425.

Detection of Insular Hormone in Duodenum.—It would appear from experiments made by Laughton and Macallum that a substance exists in normal duodenal mucosa which has a specific stimulating influence on the islets of Langerhans; in other words, an insular hormone. This, coupled with Workman's observations, introduces a new factor into the etiology of diabetes mellitus. Insular failure may result from excessive stimulation of the islets by the duodenal hormone produced as a result of excessive sugar intake over long periods. Secondly, inflammatory conditions in the duodenum may lead to a deficiency in the hormone, followed by a diminished activity in the islets themselves resulting in a hyperglycemia.

Sclerosis and Occlusion of Coronary Arteries.—Forty-four cases of coronary disease seen in the necropsy service during the past four years have been reviewed by Klotz and Lloyd. Coronary disease of the heart usually affects men between the ages of 55 and 60, rarely before 30, and is the outcome of an endarteritis associated with atheroma and calcification. The arteriosclerotic process brings about a stenosis of the vessel, but the complete occlusion results from thrombosis. They have not encountered a case in which thrombosis developed in the absence of sclerotic arteries. The sclerotic patches in the arteries are multiple, various branches of the right and left coronary being involved at the same time. The presence of stenosing endarteritis in both right and left coronary arteries enhances the myocardial damage that results from nutritional disturbances. A unilateral stenosing endarteritis may progress to a considerable degree without causing myocardial damage or cardiac manifestations. If the developing stenosis progresses slowly, the anastomotic circulation between the right and left coronaries compensates for the vascular derangement, when one coronary alone is seriously affected. Rapidly occluding processes as obtained in thrombosis induce more serious myocardial disturbances than the slowly progressive and compensating stenoses associated with chronic endarteritis. The stenosing arteriosclerosis appears to have its beginning either in a primary endarteritis or in an intimal degeneration followed by endarteritis. Although rheumatic lesions of the arteries may play a part in the origin of the sclerosis, they were unable to demonstrate this association in their specimens. Nor were they able to demonstrate a direct relation between syphilis and coronary sclerosis. Furthermore, in this discussion they do not include the stenosis arising at the aortic entrance to the coronary arteries resulting from syphilitic aortitis. The manner of distribution of the scleroses does not support the contention that the arterial lesions are the result of mechanical stresses due to unique branching of the coronary arterial system. The factors in the causation of endarteritis and atheroma of the coronary arteries are still undetermined.

Sickle-Cell Anemia.—Scriver and Waugh report a case of sickle-cell anemia observed in Canada and show that the number of sickle cells in the blood in vivo may be varied by the change of the partial oxygen pressure, that this is a reversible reaction, and that sickling takes place when the oxygen pressure falls below a pressure of 45 mm. of mercury. These observations agree with those previously noted in vitro by Hahn and Gillespie. An explanation is advanced for the presence of large aggregations of sickle cells in organs obtained at necropsy or at operation.

Multiple Adenopapillomas of Stomach. — Reports of eighty-eight cases of multiple gastric adenopapillomas have been found by Ackman in the literature, and one more case is added. The lesion is classified pathologically under two heads: polyadenoma "polypeux" and polyadenoma "en nappe." Polyadenoma "en nappe" is much rarer, only seven cases having been reported previously. The eighth is described here. The condition is generally thought to be inflammatory in origin, though a congenital origin and a familial tendency have been noted by several writers. The experimental production of these tumors by irritants is significant. There is no characteristic symptomatology, though epigastric pain is the most frequent symptom. Hematemesis is occasionally the first sign. Of laboratory diagnostic aids the roentgenogram probably comes first, though even this is apt to be misleading. Achlorhydria is an almost constant finding and when combined with myxorrhea is considered very suggestive. Malignant transformation is quite common but is rarely multiple. The latter fact is thought to be due to immunity. Their case showed, in addition to a large carcinoma, malignant changes in the stalk of a pedunculated adenopapilloma at the pylorus. Treatment should be surgical.

Journal of Industrial Hygiene, Baltimore

12: 259-290 (Sept.) 1930

*So-Called Cyanide Rash in Gold Mine Mill Workers. W. H. Braddock and G. R. Tingle, Jarbidge, Nev.—p. 259.
Fatal Case of Poisoning by Ethylene Chlorhydrin. E. L. Middleton.—p. 265.
*Dust Inhalation and Iron Ore Mining. E. L. Collis and K. W. Goadby. —p. 266.
New Methods of Heating Buildings. H. M. Vernon, London.—p. 281.

So-Called Cyanide Rash in Gold Mine Mill Workers. —Braddock and Tingle discuss a dermatitis that occurs among workers in mill plants where the cyanide process of gold extraction is used. It is suggested that the condition may be a simple dermatitis due to irritation by a strong caustic and not to poisoning by cyanide, and that the immediate exciting agent is probably lime, whether as the oxide in the dust flying round the slaking barrel or as a strong solution of the hydroxide in the mud of the mud press.

Dust Inhalation and Iron Ore Mining. — Collis and Goadby assert that prolonged inhalation of dust from iron ore does not originate miners' phthisis nor any tendency to pneumonia, but it does set up bronchitis; it causes shortness of breath and impairs chest expansion without, however, setting up troublesome symptoms; it is associated with roentgen shadows indicative of fine diffuse fibrosis; and it originates definite generalized pulmonary changes of a fibrotic type which impair the usefulness of the lungs.

Journal of Lab. & Clinical Medicine, St. Louis

15: 1177-1316 (Sept.) 1930

*Modern Conception of Arthritis. R. L. Cecil, New York.—p. 1177.
Clinical Observations in Chronic Arthritis. L. T. Swaim, Boston.—p. 1182.
*Synovial Fluid in Health and Disease: Arthritis. C. E. Forkner, Boston.—p. 1187.
*Chronic Arthritis: I. Basic Diet for Chronic Arthritis. R. G. Snyder and C. H. Traeger, New York.—p. 1214.
*Use of Drugs in Treatment of Atrophic Arthritis. A. G. Young, Boston.—p. 1231.
*Treatment of Chronic Infectious Arthritis by Sympathetic Ganglionectomy and Trunk Resection. P. S. Hench, M. S. Henderson, L. G. Rowntree and A. W. Adson, Rochester, Minn.—p. 1247.
Pain of Nerve Root Origin in Hypertrophic Ostearthritis of Spine as Confusing Factor in Diagnosis. L. Gunther, Los Angeles.—p. 1257.
Chronic Arthritis: Classification, Etiology and Pathology with Outline of Rational Treatment. L. W. Ely, San Francisco.—p. 1264.
*Analysis of Results of Treatment of Cases of Type II Arthritis in Stanford Clinic. P. A. Exelby, San Francisco.—p. 1285.
Importance of Intensive Program in Management of Arthritic Patient. W. C. Stoner, Cleveland.—p. 1291.

Modern Conception of Arthritis.—Cecil states that in rheumatic fever the most important predisposing factor is environment. Rheumatic fever is a rare disease among the well-to-do. It is extremely common among the children of the poor. This increase of susceptibility in the poor is probably a combination of improper diet and exposure to cold. The well-to-do are better fed and better clothed and escape infection. Probably another predisposing factor is exposure to a carrier of the rheumatic fever virus. This may be heredity, but contagion may be an important factor. In both rheumatic fever and infectious arthritis, focal infection is of vital significance. Statistics show that rheumatic fever cannot be prevented by the removal of all foci of infection, but the incidence is considerably reduced. Other factors are influential in the etiology of infectious arthritis. Among them, nervous or emotional shock should be stressed. It is surprising what a large percentage of these patients give a history of overwork or some emotional disturbance just prior to the onset of arthritis. Other factors, such as trauma and exposure to cold and dampness, sometimes provoke the first attack. Cecil has seen a number of butchers who say they have contracted arthritis from too many trips to the refrigerator. In hypertrophic arthritis, overweight and advancing years are the two great predisposing agents. Heredity also plays an important part. Nearly every patient with Heberden's nodes will give a history of a mother or father who was afflicted with the same condition.

Synovial Fluid in Health and in Disease: Arthritis.—According to Forkner, a sugar content under 60 mg. per hundred cubic centimeters is almost always associated with infection in the joint. A sugar content under 45 mg. is strong evidence in favor of the presence of pyogenic organisms. A p_H value in the neighborhood of 7.0 is strong evidence in favor of the presence of bacteria. A p_H value under 7.0 is almost certain to be associated with the presence of pyogenic organisms. An icteric index over 5.5 is almost invariably a sign that trauma is playing or has played a significant part in the etiology. A positive Wassermann reaction in the joint fluid associated with a negative reaction in the blood is strong evidence in favor of syphilitic arthritis. A positive Wassermann reaction in the blood associated with a negative reaction in the synovial fluid probably represents good protection against the ultimate development of syphilitic joint disease. A high leukocyte count of 11,000 or more cells per cubic millimeter associated with 60 per cent or more of granulocytes in the synovial fluid of a patient with chronic nonspecific arthritis is likely to be associated with the presence of a positive culture of attenuated organisms. A leukocyte count in the joint fluid of 5,000 or fewer cells together with less than 50 per cent of granulocytes in a patient with chronic nongonorrheal arthritis is likely to be associated with a negative culture of the fluid. The presence of large numbers of red blood corpuscles in the synovial fluid of a patient with arthritis is evidence against chronic nongonorrheal, tuberculous, syphilitic or acute septic arthritis and is in favor of trauma as the etiologic agent. Animal inoculation is of value in the diagnosis of syphilitic arthritis occurring early in the disease.

Basic Diet for Chronic Arthritis.—Snyder and Traeger assert that the regulation of diet is of utmost importance in the treatment of chronic arthritis. Each patient should be placed, for a short period, at the beginning of treatment on a basic diet, which is then regulated and adjusted to fill the individual requirements of the case. The regulation of the diet depends largely on such factors as the patient's general condition, weight, blood on chemical examination, and clinical progress. The basic diet must have low caloric value, low carbohydrate, protein and purine values, adequate vitamin content, elasticity and availability. A basic diet for chronic arthritis is presented.

Use of Drugs in Treatment of Atrophic Arthritis.—Young concludes his review by stating that when drug treatment is instituted it should be done with the definite purpose of correcting some phase of the patient's illness. In order to do this, one must know the patient clinically and understand the pharmacology of the drug to be used. Drugs used in this manner in conjunction with other methods, as indicated by the condition of the patient, will be of distinct value and contribute toward the improvement that can be obtained in a large percentage of these patients when properly treated.

Treatment of Chronic Infectious Arthritis by Sympathetic Ganglionectomy.—Hench et al. believe that resection of sympathetic ganglions and trunks is not applicable to all forms of arthritis, nor is it useful in all stages and degrees of chronic infectious arthritis. In this experimental stage it is the authors' impression that it is of definite value in certain carefully selected cases. It seems to be a justifiable procedure in these selected cases when all other reasonable measures have failed. Used properly, but not delayed too long, it may, by maintaining increase in temperature, circulation and perhaps metabolism of the more distal joints of the extremities, induce a stage of compensation in the arthritic disability that cannot be produced otherwise. Their final opinion regarding the proper selection of cases for the operation, and its value in these cases, cannot yet be expressed.

Results of Treatment of Arthritis.—The results of treatment of 108 cases of type II arthritis by the orthopedic clinic of the Stanford University School of Medicine are noted by Exelby. Sixty-three of the patients received emetine. Of 134 cases of type II arthritis in which stool examinations were made, 27 per cent showed positive results. Of 117 cases of type II arthritis in which dental examinations were made, 58 per cent showed one or more dead or abscessed teeth. Of the sixty-three patients treated with emetine, 8 per cent received complete relief from symptoms, 19 per cent considerable relief, 19 per cent slight relief, 22 per cent no relief, and the results are not known in the remaining 32 per cent. There is no correlation between the duration of the process and the success of treatment in this series of cases. The complete 12 grain (0.8 Gm.) course of emetine produced more favorable results than did shorter courses of emetine. Of fifty patients who received a full course of emetine, 58 per cent showed some toxic symptoms; 32 per cent showed moderately severe or severe reactions. Women seem somewhat more susceptible to emetine intoxication than do men. The age seems to affect the susceptibility but little. The fall in blood pressure found in almost all persons taking the emetine treatment seems not to be related in degree to other toxic manifestations of the drug.

Medical Journal and Record, New York

132: 261-312 (Sept. 17) 1930

Prophylactic Phototherapy. F. T. Woodbury, New York.—p. 261.
Intrapleural Pneumolysis by Jacobaeus-Unverricht Method. L. S. Peters and P. G. Cornish, Jr., Albuquerque, New Mexico.—p. 265.
Sacro-Iliac Joint as Cause of Lower Abdominal Pain with Simple Method of Diagnosis. C. S. Wachs, Philadelphia.—p. 269.
Cut Weeds and Prevent Hay-Fever. N. Thiberge, New Orleans.—p. 271.
Problem of Pruritus Ani. J. F. Montague, New York.—p. 272.
Gold in Treatment of Tuberculosis. J. W. Kime, Fort Dodge, Iowa.—p. 274.
Diphtheria and Typhoid Carriers: Suggestions on How Best to Ward Off Epidemics. M. Feldman, New York.—p. 276.
Cancer: Yesterday, Today and Tomorrow. W. S. Bainbridge, New York.—p. 279.
Treatment of Carcinoma of Tongue. M. Friedman, New York.—p. 284.
Cancer of Esophagus. E. P. McCullagh, Cleveland.—p. 288.
Primary Carcinoma of Ureter. H. J. Lindner, R. D'Aunoy and R. J. Mailhes, New Orleans.—p. 290.
Colloidal Metals in Treatment of Malignancy. N. Alpert, Baltimore.—p. 295.
California Medicine. J. W. Shuman, Los Angeles.—p. 298.

Missouri State M. Assn. Journal, St. Louis

27: 425-468 (Sept.) 1930

Is Medical Profession Discharging Its Full Duty to Public? W. G. Morgan, Washington, D. C.—p. 425.
Allergy and Immunity in Tuberculosis. H. H. Bell, St. Louis.—p. 429.
Epilepsies. G. W. Robinson, Jr., Kansas City.—p. 433.
Acute Lymphatic Leukemia: Two Cases. A. A. Werner, St. Louis.—p. 438.
Carbolfuchsin Paint in Treatment of Epidermophytosis. N. Tobias, St. Louis.—p. 443.
Treatment of Chronic Heart Disease. S. Luton, St. Louis.—p. 444.
Puerperal Infection Due to Anaerobic Streptococci. O. H. Schwarz, St. Louis.—p. 450.
Osteomalacia in Pregnancy. W. J. Dieckmann, St. Louis.—p. 451.
Treatment of Chronic Nephritis. H. A. Bulger, St. Louis.—p. 452.

Northwest Medicine, Seattle

29: 395-442 (Sept.) 1930

Third Type of Toxic Thyroidism. C. A. Roeder, Omaha, and W. A. Killins, Green Bay, Wis.—p. 395.
Classification of Goiter. S. D. Van Meter, Denver.—p. 404.
Thyrotoxicosis and Neurosis. L. Seed, Chicago.—p. 407.
Adenomatous Goiter. H. W. Riggs, Vancouver, B. C.—p. 410.
Hyperthyroidism. L. Long, Oklahoma City.—p. 411.
Complications Following Thyroidectomy. N. W. Gillette, Toledo, Ohio.—p. 413.
Prevention of Postoperative Recurrence in Thyroidectomy. J. E. Else, Portland, Ore.—p. 416.
Hyperthyroidism and Hypothyroidism After 2,500 Thyroidectomies. A. G. Brenizer, Charlotte, N. C.—p. 420.
Variations in Normal Positions of Parathyroids. R. J. Millzner, San Francisco.—p. 423.
Effects of Thyroid Activity on Female Organism. R. R. Wilson, Kansas City, Mo.—p. 425.
Necrosis of Heart and Liver in Thyrotoxicosis. W. J. Kerr, San Francisco.—p. 430.

Oklahoma State Medical Assn. Journal, Muskogee

23: 297-324 (Sept.) 1930

Symptoms and Diagnosis of Syphilis in New-Born and Early Infancy. C. H. Hall, Oklahoma City.—p. 297.
Symptomatology and Diagnosis of Late Manifestations of Congenital Syphilis in Children. W. M. Taylor, Oklahoma City.—p. 299.
Roentgenologic Manifestations of Syphilis in Infancy and Early Childhood. J. E. Heatley, Oklahoma City.—p. 300.
Treatment of Syphilis in New-Born. C. B. Taylor, Oklahoma City.—p. 301.
Bone Syphilis in Children. W. K. West, Oklahoma City.—p. 302.
Relation of Syphilis to Internal Medicine. C. P. Bondurant, Oklahoma City.—p. 302.
Effect of Gas Explosions on Hearing. W. T. Salmon, Duncan.—p. 306.
Streptococcic Septicemia with Middle Ear as Infection Atrium. A. C. McFarling, Shawnee.—p. 308.
Chemical Analysis of Blood and Functional Tests as Aid in Diagnosis. V. G. Isvekov, Shawnee.—p. 310.

Pennsylvania Medical Journal, Harrisburg

33: 805-922 (Sept.) 1930

Chemistry of Nephritis. W. S. McEllroy, Pittsburgh.—p. 822.
Diagnosis of Uremia. A. Stengel, Philadelphia.—p. 825.
Treatment of Kidney Disease. J. D. Heard, Pittsburgh.—p. 827.
Low Back Pains. J. T. Rugh, Philadelphia.—p. 831.
Tuberculosis of Spine. C. C. Yount, Pittsburgh.—p. 835.
Diagnosis and Treatment of Postural Deformities of Spine. D. P. Willard, Philadelphia.—p. 835.
Cutaneous Manifestations of Systemic Disorders. F. Amshel, Pittsburgh.—p. 839.
Middle Ear and Problems. J. A. Babbitt, Philadelphia.—p. 844.
Middle Ear and Problems from Standpoint of Vascular Anatomy and Complications. W. J. Gardner, Philadelphia.—p. 849.
Middle Ear and Problems from Standpoint of Vertigo. L. Fisher, Philadelphia.—p. 852.
Thymic Syndrome. A. M. Dannenberg, Philadelphia.—p. 855.
Roentgen Diagnosis and Treatment of Enlargement of Thymus. E. P. Pendergrass, Philadelphia.—p. 860.
Conditions Simulating Thymus Disease and Diagnosis. J. M. Higgins, Sayre.—p. 866.

Public Health Reports, Washington, D. C.

45: 2077-2151 (Sept. 5) 1930

Chief Etiologic Factors of Plague in Ecuador and Antiplague Campaign. C. R. Eskey.—p. 2077.

45: 2153-2220 (Sept. 12) 1930

Bacillus Psittacosis Nocard, 1893: Failure to Find It in the 1929-1930 Epidemic in the United States. S. E. Branham, G. W. McCoy and C. Armstrong.—p. 2153.
College Course in Child Hygiene. E. B. Sterling.—p. 2160.
Chief Etiologic Factors of Plague in Ecuador and Antiplague Campaign. C. R. Eskey.—p. 2162.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 409-456 (Sept. 13) 1930

Treatment of Congenital Dislocation of Hip. H. P. H. Galloway.—p. 409.
*Bacillus Coli Infections. K. D. Wilkinson.—p. 412.
*Bacillus Coli Infections. D. Nabarro.—p. 414.
Laboratory in Scheme of Preventive Medicine. W. G. Willoughby.—p. 418.
Management and Treatment of Incipient Cataract. L. V. Cargill.—p. 419.
Diagnosis of Cancer of Larynx. E. D. D. Davis.—p. 421.
*Intestinal Obstruction: Unusual Case. B. K. Sikand and E. V. Claydon.—p. 422.

Bacillus Coli Infections.—Wilkinson discusses a *Bacillus coli* infection of the urine, a condition which he says is frequent in children, commoner in girls than in boys, appearing in acute, chronic and recurrent forms, but which is relatively seldom fatal. This condition has been called pyelitis, but it is not always part of a septicemia or evidence of a nephritis. It is hardly likely that a severe septicemic condition in children, with renal infection and possibly abscess formation, could have a mortality as low as 3 per cent after the age of 2, and it is significant that the collection of seventy-eight postmortem records took no less than twelve years at two large children's hospitals, whereas, clinically, *B. coli* infections are of common occurrence.

Bacillus Coli Infections.—In Nabarro's experience, infections with *B. coli* in children are by no means rare; they often get well spontaneously; at other times they become chronic or tend to recur. In the chronic and recurring cases cystoscopy, pyelography and, if necessary, catheterization of the ureters should be carried out in order to ascertain whether there is any abnormality present to account for the clinical condition. These surgical procedures should not be so long delayed that the child's kidneys are found to be irreparably damaged when the biochemist makes an investigation of the blood urea and of the renal function. Every case of urinary tract infection should be investigated by a team of five—a physician, a surgeon, a bacteriologist, a biochemist and a radiologist and, if the patient should unfortunately die, then also a pathologist to hunt carefully for anatomic abnormalities. If this were always done these cases would be more thoroughly and systematically investigated than in the past, and the results would be better than have hitherto been obtained.

Intestinal Obstruction.—Sikand and Claydon relate the case of a man who was suddenly seized with acute abdominal pain after eating a heavy meal. He vomited at the time and continued to do so throughout the night. The following morning he was markedly collapsed, with a pinched face and a pulse uncountable and imperceptible at the wrist. The respiration rate was 22 and the temperature 97.7 F. The abdomen was distended, rigid and tender, especially in the epigastrium; movements were practically nil. The patient had not passed urine and the bowels had not been open since before the onset of the attack; a gentle enema gave no result. The abdomen was opened by a midline subumbilical incision. Loops of slightly distended but much engorged small intestine presented, and the abdominal cavity contained a considerable amount of blood-stained fluid. The trouble was eventually traced to the sigmoid loop, which was long and mobile, and which had swung across the abdomen to the right side, where it had herniated into a large retrocecal fossa. It was tightly gripped in this position by a tense peritoneal band extending from the abdominal wall behind the cecum to the lower end of the attachment of the mesentery of the ileum. The sigmoid loop was tightly stretched but was not twisted. It was found that in taking up this position it had come to lie across the mesentery, obstructing the blood supply of the ileum for six or eight feet to within one foot of the ileocecal junction, where the structures, including the appendix, were quite normal. The constricting band of mesentery was divided. Continuous intravenous saline solution was given throughout the operation, but at this stage life was almost extinct and it was considered advisable to close the abdomen. The patient died about one hour later.

Edinburgh Medical Journal

37: 497-568 (Sept.) 1930

Melanogenesis. G. H. Percival and C. P. Stewart.—p. 497.
*Analogy of Black Colostrum to Melanidrosis: Colored Milk and Colored Sweat. D. M. Greig.—p. 524.
*Nature and Structure of Suprarenal Cortex. J. P. M'Gowan.—p. 545.

Analogy of Black Colostrum to Melanidrosis.—Greig points out that in sweat secreted under abnormal conditions there may be on rare occasions some constituent which on oxidation by air yields a black pigment; in colostrum there may be on rare occasion some constituent which by the action of oxidase, which colostrum is known to contain in excess, yields a black pigment. The change in the sweat takes place on the surface; the change in the milk occurs intraductally. The sudoriparous and the mammary glands have the same phylogeny and similar physiologic principles modify and control their function. The conclusion is justifiable that there is a close analogy between black colostrum and melanidrosis.

Nature and Structure of Suprarenal Cortex.—Certain appearances of the suprarenal of fowls suffering from leukosis have led M'Gowan to make deductions regarding the structure and function of its tissues. The occurrence of a myelocytic proliferation in the sinusoids would seem to be an instance of the general rule that myeloid tissue is formed in endothelial or subendothelial situations in veins. The cortical nodules are considered to be periarterial structures and to be formed in the mature gland by the development of the reticulo-endothelial elements situated in the sheaths of arterioles. The cells of the cortex, therefore, are mesoblastic in origin. The relation of the function of the cortex to that of the sex glands is discussed.

Glasgow Medical Journal

33: 97-152 (Sept.) 1930

Teaching of Clinical Subjects in Final Year: Obstetrics. J. M. M. Kerr.—p. 97.
*Fahraeus's Test for Suspension Stability of Erythrocytes in Tuberculosis Practice. J. Crocket.—p. 106.
Two Recent Cases of Typhus Fever in Glasgow. C. M. Smith.—p. 117.

Fähraeus's Test for Suspension Stability of Erythrocytes.—Crocket believes that the sedimentation test is a simple and satisfactory means of determining the degree of toxemia resulting from the absorption of products of destruction. The test is particularly useful in tuberculosis; taken on several occasions, it helps one to assess the fitness of the patient and points to the probable course that the disease will take. The test should not be taken by itself but used along with other means of investigation, as its results are not parallel with the facts of the case in more than 85 per cent of the cases. The test is sufficiently simple and rapidly carried out to be adopted in the consulting room in general or dispensary practice.

Lancet, London

2: 561-616 (Sept. 13) 1930

Thermal Adjustment of Man and Animals to External Conditions. C. J. Martin.—p. 561.
Treatment of Asthma. W. R. F. Collis.—p. 567.
Pruritus Ani et Vulvae. L. F. R. Knuthsen and F. H. Humphris.—p. 569.
Abdominal Torsion of Omentum. M. J. Smyth.—p. 572.
Benzyl-Cinnamate Treatment of Pulmonary Tuberculosis. T. W. Wadsworth and J. T. Flanagan.—p. 576.
*Study of Yeasts by Complement-Fixation Test. K. Stone.—p. 577.
Severe Diphtheria: An Accessory Method of Treatment. B. A. Peters.—p. 579.
Septic Carriers. L. Grant.—p. 579.
Gonorrhea in Female Child. H. G. Broadbridge.—p. 580.
Portable Thermostat for Blood Transfusion. A. G. Shera.—p. 581.

Study of Yeasts by Complement-Fixation Test.—Stone asserts that by using a saline washing of the yeast as antigen the complement-fixation test can be applied in the identification of various members of the yeast and sporothrix groups. Specimens of thrush (*Oidium albicans*) obtained from ten successive cases gave identical results. By the complement-fixation test, all belong to one serologic type. Specimens of yeasts obtained from other sources have been studied and are shown to fall into five types. The sporothrices of Beurmann and Schenck appear to be identical, and quite distinct from yeasts so far studied. The sporothrices of Gougerot and Jeanseln appear to be identical with black yeasts obtained from other sources.

Practitioner, London

125: 353-448 (Sept.) 1930

Prognosis of Coronary Thrombosis. B. Parsons-Smith.—p. 353.
*Radiographic Study of Coronary Arteries: Coronary Thrombosis. E. W. Jones.—p. 370.
Angina Pectoris. M. Newman.—p. 388.
Diabetes in General Practice. M. O. Raven.—p. 402.
Disorders and Accidents of Athletes. R. S. Woods.—p. 411.
Treatment of Visceroptosis. H. C. Bull.—p. 421.
Vagaries of Tonsil. H. N. Barnett.—p. 429.
Vaginal Prolapse. W. M. H. McCullagh.—p. 434.
Serum Prophylaxis in Measles. R. F. C. Ward.—p. 438.

Radiographic Study of Coronary Arteries.—Jones describes his method of injecting the blood vessels of the heart with barium sulphate for purposes of radiologic study and then relates the results of his study of three cases. He says that the occlusion of the artery to the auriculoventricular node is a much more serious lesion than the occlusion of a branch of a similar size on the lateral aspect of the left ventricle. The larger the artery occluded, the greater is the liability to intracardiac thrombosis, aneurysm and rupture. Coronary anastomosis becomes much more extensive with increasing age. It is clear, therefore, that the coronary system of persons over 50 may be capable of adjusting itself rapidly to any sudden vascular alterations. Compensatory anastomosis is well developed when the rate of occlusion has been slow, and the myocardium is normal in those cases in which occlusion has been gradual. Low blood pressure tends to delay the opening of new anastomotic channels. Chronic interstitial myocarditis is a common occurrence prior to infarction and that is due to the coronary sclerosis that existed prior to the final occlusion. The presence of fibrosis is serious in that the finer arterioles are obliterated and thereby the anastomosis is much diminished. Canalization of the thrombus will assist to a certain extent in reestablishing the blood supply.

Archives de Médecine des Enfants, Paris

33: 519-582 (Sept.) 1930

*Cerebral Lesions in Whooping Cough. W. Mikulowski.—p. 519.
*Pneumonia in Early Infancy. E. Cassoute, R. Poinso and Zuccoli.—p. 546.
Eczema in Nurslings. R. Froycz.—p. 550.

Cerebral Lesions in Whooping Cough.—Mikulowski condemns the common opinion that whooping cough is merely a cough lasting six weeks and accompanied by vomiting. It is in his opinion one of the most frequently fatal diseases of childhood. The cough itself, in fact, is merely a defensive reflex reaction of the organism to the general infection; laryngeal contractions and convulsions often accompany, precede or even replace the cough. Whooping cough is often accompanied or followed by cerebral lesions, especially hyperemia, edema of the brain and the meninges and venous thrombosis. These cerebral lesions are the result of the toxic and infectious influence of the pertussis virus on the brain and the nervous and vascular system and are closely connected with pulmonary lesions arising from a center of inflammation in the lungs.

Pneumonia in Early Infancy.—Cassoute et al. are convinced that pneumonia occurs in nurslings. Typical cases present the same symptoms that accompany pneumonia in older patients. Although the helmet-shaped shadow revealed by roentgen examination is present also in chronic syphilitic pneumopathies, tuberculous pneumonia and pseudolobar bronchopneumonia, the syndrome and development of these diseases is so different that they can be easily distinguished from the typical forms of pneumonia. However, certain atypical or prolonged forms of pneumonia in which the evolution of the disease is longer and the symptoms more irregular are difficult to distinguish from pseudolobar bronchopneumonia or splenopneumonia, although their resemblance to the typical forms is marked.

Journal de Médecine de Lyon

11: 461-490 (Aug. 20) 1930

*Subhepatic Pain in Peptic Ulcer. A. Cade and M. Milhaud.—p. 461.
*Concealed Cancer of Esophagus. S. Bonnamour and P. Pichat.—p. 469.
Classification and Action of Cholagogues. M. Milhaud.—p. 477.

Pain in Pyloric and Duodenal Ulcers as Cause of Incorrect Diagnosis.—Cade and Milhaud show that the localization of the pain produced by pressure is of little pathognomonic significance in the diagnosis of pyloric and duodenal ulcers, and in distinguishing between such ulcers and chronic cholecystitis. Three cases are cited in which pain was felt in he region of the gallbladder and in which other symptoms eemed clearly indicative of cholecystitis; but operation revealed duodenal ulcers. Unfortunately dyspeptic symptoms, gastric chemism and roentgen examination give no better results. The best advice that can be given, therefore, is not to forget that here is a possibility of pyloric or duodenal ulcer even though he syndrome indicates cholecystitis.

Concealed Forms of Cancer of Esophagus.—Bonnamour and Pichat point out that dysphagia is not always present in cancer of the esophagus, a fact not as yet well known because n most of these cases the diagnosis is made only on postmortem examination. The principal forms of cancer of the esophagus without dysphagia are: (1) gastric; (2) cachetic and anemic; (3) bronchopulmonary; (4) mediastinal and laryngeal, and (5) metastatic. The diagnosis is difficult when dysphagia s absent; in fact, one must usually first consider the possibility of cancer of the esophagus and then look for symptoms, the most important of which are frequency, precocity and minimal mount of vomiting, hiccups, excessive secretion of saliva, leuropulmonary signs and roentgenoscopic mediastinal obscurity.

Médecine, Paris

11: 565-640 (Aug.) 1930

Dolichocolon and Megacolon in Children. P. Nobécourt.—p. 577.
Infantile Acrodynia as Result of Encephalitis. E. Leenhardt and J. Chaptal.—p. 582.
Some Peculiarities of Typhoid Among Children. L. Babonneix.—p. 593.
Early Stages of Deficiency Diseases in Children. G. Mouriquand.—p. 598.
Vaccinotherapy in Bronchial Pneumonia Among Children. C. Gardère.—p. 602.
Splenohepatic Tuberculosis in Nurslings. J. Baylac and L. Bounhoure.—p. 609.
Convergent Strabismus as Result of Hereditary Syphilis. P. Jeandelize.—p. 618.
Diphtheria in Children Vaccinated with Ramon's Anatoxin. G. Blechmann and A. Bohn.—p. 622.
Herter's Infantilism: Relations with Defective Digestion and Avitaminosis. G. L. Hallez.—p. 626.

Vaccinotherapy in Bronchial Pneumonia Among Children.—Gardère cites clinical observations and statistics to show hat while vaccinotherapy in bronchopneumonia among nurslings does not noticeably affect the prognosis, nevertheless the mortality rate is slightly lowered by its use. It is well, therefore, to use vaccination regularly in addition to other methods of treatment in order to give children every possible chance or recovery. When vaccine cannot be secured, proteinotherapy n the form of subcutaneous injection is the best substitute.

Paris Médical

2: 181-224 (Sept, 6) 1930

Ophthalmology in 1930. G. Cousin.—p. 181.
Surgical Diathermy in Ophthalmology. A. Monbrun.—p. 187.
Ocular Complications Caused by Vaccine. P. Toulant.—p. 190.
Otorhinolaryngology in 1930. L. Dufourmentel and A. Bureau.—p. 193.
Tracheotomy: Indications, Technic and Accidents. Rossert and Moatti.—p. 200.
Indications for Operation in Acute Mastoiditis. G. Liébault.—p. 206.
Stomatology in 1930. C. L'Hirondel.—p. 209.
Diagnostic Value of Dental Dystrophies in Diseases of Children. R. C. Thibault.—p. 219.
Treatment of Severe Inflammation Caused by Lower Wisdom Tooth. M. Dechaume.—p. 222.

Ocular Complications Caused by Vaccine.—Toulant hows that dangerous complications may develop from infection of various parts of the eye with vaccine, since the eye does not participate in the general immunity acquired by previous vaccination. All who assist in the care of vaccinated children, and those who assist in the preparation of vaccine, should take special precautions to protect their eyes from contact with the serum itself or with infected material. The author mentions a severe case of keratitis which developed from a father's rubbing his eyes after caring for his child who had been vaccinated. The infection may be localized in the eyelids, the conjunctiva or the cornea. Vaccinal keratitis is the most dangerous of the three, frequently lasts from six months to a year, and often results in the complete loss of one or both eyes. No particularly successful treatment has yet been found to combat this infection. The best procedure, therefore, is for all those in contact with vaccine to exercise all possible care. Every one should have at hand a 1 or 2 per cent solution of silver nitrate, or an eyewash of strong silver protein (10 per cent) or of chloramine (2 per cent) to be used immediately as an antiseptic if infection of the eye is suspected.

Indications for Operation in Acute Mastoiditis.—The three chief symptoms to observe in determining the advisability of a surgical operation in cases of mastoiditis are pain, temperature and discharge. If in a case of otitis, after the opening of the tympanum, the pain does not disappear in a short time but persists either steadily or spasmodically, and if palpation reveals soreness in the mastoid region, one has a right to suspect the development of mastoiditis. Although the pain alone is insufficient evidence, under these conditions the temperature curve is usually found to deviate from the normal either by a steadily increasing temperature, by failure of the fever developed earlier to disappear after the opening of the tympanum, or by a marked irregularity of temperature on different days or from morning to evening. The discharge also will probably show irregularities; in some cases it shows a marked increase while in others it stops and starts from one day to the next. Therefore, while no one of the three symptoms of pain, fever or irregularities in discharge is sufficient grounds for an operation, careful clinical observation of all three makes it possible to determine definitely when surgical intervention is necessary. Liébault makes a special point of the fact that the symptoms formerly considered decisive (retromastoid puffiness, then swelling in this region and later redness and fluctuation) appear too late to have any diagnostic value, since they indicate not that mastoiditis exists but that it has existed.

Presse Médicale, Paris

38: 1169-1184 (Aug. 30) 1930

*Treatment of Poliomyelitis with Serum of Former Patients. A. Netter.—p. 1169.
Preparation and Handling of Radioactive Bodies. F. Heim de Balsac, E. Agasse-Lafont and A. Feil.—p. 1171.
Proof of Existence of Traumatic Cholecystitis. G. Parturier.—p. 1173.
Perforations of Postabortal Infected Uterus. P. Monod and E. Kiraly.—p. 1175.
*Accidental Parasitism of Digestive Tube by Tyroglyphus Farinae. J. Quérangal des Essarts.—p. 1176.

Treatment of Poliomyelitis with Serum of Former Patients.—Netter advocates the use of serum of former poliomyelitis patients in the treatment of the disease. This serum is an efficacious means of preventing the evolution of poliomyelitis in its preparalytic stages and of arresting paralysis in the later stages. When former patients are difficult to find, a neutralizing serum can often be obtained from the blood of healthy adults who have been in contact with or near poliomyelitis patients, or even from the blood of adults from localities where cases of poliomyelitis have formerly existed.

Accidental Parasitism of Digestive Tube by Tyroglyphus Farinae.—Quérangal des Essarts, in the course of almost a thousand coprologic examinations, found *Tyroglyphus farinae* eight times. The occurrence of this acarid seemed entirely accidental and isolated, as further examinations of the stools of the same patients revealed no more traces of the parasite or its eggs. The author describes briefly the eight cases cited.

38: *1185-1200 (Sept. 3) 1930*

Prognostic Value of Variations of Weight in Pulmonary Tuberculosis. J. Caussimon.—p. 1185.
*Origin and Practical Importance of Leukocytosis, Fever and Azotemia as Postoperative Reactions. D. Berceanu, M. Slatina and Albulesco.—p. 1187.

Importance of Leukocytosis, Fever and Azotemia as Postoperative Reactions.—Leukocytosis as a postoperative reaction occurs to a degree corresponding with the activity of the hematopoietic organs of the patient; this activity depends on the disease from which the patient is suffering, his age and his physical resistance. Postoperative leukocytosis causes companion reactions of fever and azotemia. From these facts Berceanu et al. draw the following conclusions: *Intense leukocytosis with high fever and pronounced azotemia indicates general physical vigor and activity of the hematopoietic organs; hence an extremely favorable postoperative prognosis. Likewise* moderate leukocytosis with correspondingly mild fever and azotemia suggests a moderately favorable prognosis. Little or no leukocytosis may be taken as a warning of unfavorable postoperative evolution.

38: 1201-1216 (Sept. 6) 1930

*Tourniquet Capillary Resistance Test and Familial Serotherapy in Hemorrhagiparous Conditions. P. Chalier and R. Froment.—p. 1201.
Periodic Vomiting with Acetonemia. G. Leven and R. Leven.—p. 1202.

Tourniquet Capillary Resistance Test and Familial Serotherapy in Hemorrhagiparous Conditions.—Chalier and Froment describe a case of severe purpura in the course of ordinary diphtheritic angina revealed by a tourniquet capillary resistance test, which is invaluable in determining hemorrhagiparous conditions. In the treatment of such conditions the authors find human serotherapy extremely effective, especially when serum from the blood of members of the same family is used. Several of their patients who were suffering from hemorrhages both in diphtheritica angina and from other sources have been cured by subcutaneous injections of serum from the blood of a relative when injections of serum coated with gelatin and animal blood serum had been wholly inefficacious.

Revue Belge des Sciences Médicales, Louvain

2: 493-600 (June) 1930

*Advantages of Phrenicectomy Combined with Pneumothorax. C. B. Udaondo and A. Vadone.—p. 493.
*Pathogenesis and Treatment of Mega-Esophagus. P. Guns.—p. 505.

Advantages of Phrenicectomy Combined with Pneumothorax.—Udaondo and Vadone advocate the use of phrenicectomy as a subsidiary to pneumothorax in certain cases in which this method perfects and completes the action of the pneumothorax. This use of phrenicectomy has the following advantages: (1) prolonged duration of the pulmonary collapse, reabsorption of the insufflated air being balanced by the ascent of the diaphragm; (2) prolonged interval between insufflations; (3) ideal conditions for pulmonary reexpansion, because of the reduction of the pleural cavity, after abandoning the pneumothoracic cure, and (4) more complete pulmonary repose. However when the diaphragm is fixed by obliteration of the costodiaphragmatic sinuses, the operation is contraindicated because the ascent of the diaphragm is impossible. For this reason it is best to proceed first with the pneumothorax and then ascertain either by roentgen examination or by pleural pressure whether a phrenicectomy is indicated.

Pathogenesis and Treatment of Mega-Esophagus.—Guns conducted a series of experiments to determine the pathogenesis of mega-esophagus. He found that the source of this disturbance is in the autonomic nervous system. A phrenocardiospasm is first produced. This is replaced by a cardiospasm under the mechanical influence of the weight of the substances in the esophagus. As the mass directly above the seat of the spasm increases, it fatigues the diaphragmatic muscles and causes the contracture to take place wholly in the cardia. This mechanical action is amplified by the peristalsis. There have been many opinions as to treatment. However, at present most physicians prefer to practice dilation of the cardia to 5 or 6 cm. in diameter by means of bougies. Guns has achieved favorable results by using strychnine along with dilation.

Chirurgia degli Organi di Movimento, Bologna

15: 1-186 (July) 1930

Congenital Pseudarthrosis of Tibia. M. Camurati.—p. 1.
*Arthritis Due to Bacterium Coli-Commune. E. Codeleoncini.—p. 163.
Remote Results of Free Autoplastic Bone Transplants in Pseudarthrosis of Femoral Diaphysis. F. Melina.—p. 174.

Arthritis Due to Bacterium Coli-Commune.—Codeleoncini's patient, a coachman, aged 67, was a man whose general health was bad, which explains possibly in part the unusual site of the colibacillary infection. The patient developed a pain of moderate intensity in the left knee, which appeared and disappeared without evident cause. The pain increased later but retained the same character. The part was neither red nor swollen. The patient had recently lost from 8 to 11 pounds (3.6 to 5 Kg.). Later a slight edema of both lower limbs developed. In the urine a considerable quantity of colibacilli were found. The clinical diagnosis was subacute arthritis of the left knee and tumor of the prostate. The swelling involved later the lower third of the thigh and the uppermost third of the leg. The normal depressions of the patellar and parapatellar regions had, in part, disappeared. Roentgen examination of the knees revealed nothing pathologic. A month after admission to the hospital, the cavity of the left knee was opened and about 300 cc. of thick, yellow and thready pus was evacuated. Numerous bacilli were found, which were identified as colibacilli. The patient was somewhat relieved; the pain nearly disappeared. Two days later there was a marked rise of temperature with chills and the knee again became painful. About 100 cc. of the same kind of pus was evacuated. The bacteriologic examination gave the same results as before. Seven weeks later, a general intoxication due to cancerigenic metastases and altered metabolism developed and death occurred three months after the first evacuation. In view of the small number of cases that have been reported, the author hesitates to advance any theory to explain how colibacilli became localized in the left knee but thinks the low state of health of the patient favored such localization. He is inclined to assume that, owing to the ubiquitous nature of colibacilli, such infections may not be as rare as is supposed. As for the treatment of arthritis due to colibacilli, surgical and orthopedic methods are most important. Also autovaccinotherapy, when indicated and possible to carry out, if begun promptly and followed up with rapidly increasing doses, is valuable. Of late, a great deal is said about d'Herelle's bacteriophage. In France, Fisch's vaccine and Vincent's anticolibacillary serum are much used. Antiseptics, given intravenously (methenamine, 40 per cent solution), or applied locally (for example, compound solution of iodine or solution of chlorinated potassium carbonate [Javel]) sometimes give good results.

Clinica Ostetrica, Rome

32: 449-536 (Aug.) 1930

*Biologic Diagnosis of Pregnancy by Aschheim-Zondek Method. G. Addessi.—p. 449.

Diagnosis of Pregnancy by Aschheim-Zondek Method.—Addessi, after referring to other methods proposed for the biologic diagnosis of pregnancy, considers the value of the Aschheim-Zondek test. From the application of the test to forty-eight pregnant women, in various months of gestation, there were forty-seven positive results and one negative result. Of eight extra-uterine pregnancies, six gave a positive reaction and two a negative reaction. In sixteen puerperal women it was demonstrated that the hormone of the anterior lobe of the hypophysis is eliminated with relative rapidity, for after the sixth day since the birth the reaction has always been negative. In twenty-four controls consisting of women of various ages with various gynecologic disorders, inflammatory conditions of the adnexa and parametrium, healthy men of various ages, and others, the result of the test was always negative. The author emphasizes the importance and the utility of the test, especially in those cases of initial pregnancy in which the clinical examination ofttimes does not furnish sure results.

Giornale di Clinica Medica, Parma

11: 677-764 (July 20) 1930

*Cervical Spina Bifida Occulta and Its Late Clinical Symptoms. G. Reggiani.—p. 677.
Subcutaneous Leiomyofibro-Angiomatosis: Case. C. Malossi and G. Gelli.—p. 729.

Late Clinical Symptoms of Cervical Spina Bifida Occulta.—Observations in a case of amyotrophic paralysis of the upper limbs in a man, aged 48, in which the roentgen examination revealed a split in the seventh cervical vertebra, furnished Reggiani the occasion to survey and discuss the so-called late syndromes of cervical spina bifida occulta. After describing and discussing the diagnostic aspects of the case, he considers observations made by others in cases of cervical spina bifida occulta. Cases in adults are discussed in their clinical manifestations and in their genesis. From comparisons drawn between the observations previously made and his own case, the author concludes that a malformation of this nature does not present peculiar clinical aspects. He admits, however, the possibility of syringomyelic syndromes, paralysis and muscular atrophy being among the anomalies of primary development. Having found in the observed case data that pointed to syphilitic infection, the author thinks that such a factor may intervene as an occasional cause in the determination of the syndromes observed in spina bifida occulta in the adult.

11: 765-846 (Aug. 10) 1930

*Skin Changes and Nervous Disturbances Due to Acute Poisoning from Illuminating Gas. A. Biancalani.—p. 765.
Observations on a Series of Cases of Pericarditis. C. Zerman.—p. 790.

Disturbances Due to Poisoning from Illuminating Gas.—Biancalani reports that in the case studied by him the palpebral ptosis, whether it is brought into relation with central hemorrhages or with peripheral changes, disappeared in a few days. The partial paralysis, however, in the field of the median and the radial nerves, persisted five months after the poisoning and was showing a slight improvement as the result of suitable electrotherapeutic applications.

Pediatria, Naples

38: 585-640 (June 1) 1930

*Arneth and Schilling Formulas in Most Common Exanthematic Diseases and in Diphtheria in Infants. C. Nervi.—p. 593.
Babinski Reflex in Acute Anterior Poliomyelitis. G. Jona.—p. 609.
Mixed Osteohypertrophic Nevus of Left Maxilla, Chin, Neck and Left Half of Tongue: Case. P. Lacchia.—p. 617.
Scurvy in Infant: Case. G. Marcelli.—p. 626.

Arneth and Schilling Formulas in Exanthematic Diseases and Diphtheria.—Nervi made both the Arneth formula and the Schilling blood count in seven normal children as controls and in four groups of children with diphtheria, scarlet fever, measles or varicella. The blood for examination from the stricken children was taken in one group at the peak of the disease and in the other group at three different periods (at the peak of the disease, at the descending period from the crisis to the convalescence and in late complete convalescence). The author presents his results in tables. The current theories are briefly reviewed. In normal children the figures given by the Schilling blood count agreed with those of the Arneth formula. In the Schilling blood count the neutrophils are divided into two groups: neutrophils with only one nucleus and polymorphonuclear neutrophils. While modifications of the neutrophilic picture were observed in the Arneth formula, the author observed that, in infectious diseases, cells of one or of two nuclear segments predominate, that is, there is a shifting of the neutrophils to the left. This shift curve has no relation with the seriousness of the condition and it is more marked during the period from the crisis to the convalescence, while it returns almost to normal in complete convalescence. The author considers that in infectious diseases the bone marrow is under the influence of a toxic or infective stimulus which compels a rapid production of young cells. The predominance of young cells is more marked in scarlet fever, is less in measles, is still less in diphtheria and is almost insignificant in varicella. In the determination of the Schilling blood count the author considers the young forms of neutrophils as regenerative cells that improve the condition of the blood. In infectious diseases, young forms of the type of the regenerative cells with a single nucleus predominate in the circulation during the acute period. In the period from the crisis to the convalescence, an intense regeneration of the blood takes place, while few myelocytes and metamyelocytes appear in the circulation, and in complete convalescence the blood returns to normal or almost normal. The author could not find even in the most serious forms of infections a high percentage of immature cells. He concludes that the value of the neutrophilic picture of Arneth is more theoretical than practical in the diagnosis and prognosis of infectious diseases. The formula does not point out either the nature or the intensity of the stimulus of the bone marrow. The Schilling blood count gives a clearer idea for the interpretation of the picture given by infectious diseases, but, if the grave symptomatology of these diseases is taken in consideration, even the Schilling blood count is of but little value. However, the knowledge derived from these two formulas on the conditions of the blood during infectious diseases should be taken as the basis for a qualitative and quantitative estimation with regard to the rôle assumed by the bone marrow and the peripheral blood in the evolution of several infections.

38: 697-752 (July 1) 1930

Changes of Sugar Metabolism in Peptone Shock with Circulatory Insufficiency. E. Schiff, H. Eliasberg and A. Mazzeo.—p. 697.
*Rhythm and Action Current of Heart in Typhoid in Children During Shock Caused by Antityphoid Vaccine. M. Gerbasi.—p. 709.
Anemia and Idiopathic Hypertrophy of Heart in Early Childhood: Case. E. Frola.—p. 733.

Rhythm and Action Current of Heart in Typhoid During Shock Caused by Antityphoid Vaccine.—Gerbasi studied the behavior of the rhythm and action current of the heart during the shock caused by the intravenous injection of lysed typhoid vaccines in fourteen children with typhoid, aged from 2 to 13 years. All the patients recovered. Electrocardiograms were taken immediately before the injection, during the crisis of the reaction caused by the vaccine and after the disappearance of the reaction. In seven of the children the electrocardiograms were repeated during complete convalescence when the general condition of the patients had markedly improved. The administration of any medicament that could in any way interfere with the results, or act even indirectly on the heart, was suppressed during a period preceding and including the observations. It was a constant observation that after the intravenous injection of typhoid vaccine the waves in the electrocardiograms were smaller in cases in which the activity of the heart was more seriously affected than in those cases in which the functioning of the heart was less seriously impaired. That is, in the first group of patients the phenomena of generation of the action current of the heart (or nervous stimulus) was less intense than in the former group. Examination of the electrocardiograms proved that the shock that follows the intravenous injection of antityphoid vaccines causes an activation of the electromotive force of the heart. It also causes alterations of different form and intensity of the functions of the heart. These alterations are in relation with the more or less serious condition in which the heart is under the influence of the disease. They may be overcome when the functioning of the heart is reasonably good, but otherwise they may endanger the patient's life. Hence the advisability of considering the alterations caused by typhoid not exactly as a contraindication for the use of intravenous injections of antityphoid vaccines, when they have not caused serious disturbances in the functioning of the heart, but as a clear indication of the caution necessary in the use of the vaccines in patients in whom the functioning of the heart is impaired.

Riforma Medica, Naples

46: 1109-1148 (July 14) 1930

Lactic Acid Content of Blood in Normal and in Pathologic Conditions. M. Calabresi and W. Schwarz.—p. 1111.
Deviation of Complement with Spirochetal Antigen in Syphilis. A. Versari.—p. 1115.
Physiology of Visceral Innervation in Man: Sympathetic Nerve and Gastric Sensitiveness. G. Pieri and M. Lapenna.—p. 1117.
*Rigid Fixation of Jaws Due to Forward Luxation: Arthroplasty. A. Battista.—p. 1122.

Rigid Fixation of Jaws Due to Forward Luxation: Arthroplasty.—Battista describes in detail his operation on a boy, aged 9, who, as a result of a fall from a wall six feet high, in which he struck on his chin, developed a rigid closed fixation of the jaws due to forward luxation of the mandible. The author made a vertical incision beginning a finger's length from the tragus. Crossing the zygomatic arch, the incision extended 5 cm. in the temporal region. A second (transverse) incision was made, starting from a point from which it formed a right angle with the first incision and running along the lower border of the zygomatic arch. As the soft parts were reached they were dissected downward so as to avoid the facial nerve; thus the bony skeleton was reached. The displaced head of the condyle, held tightly in the zygomatic arch at about the junction of the temporal and the upper maxillary processes, was easily recognized by its different shade of color, due to its enveloping cartilage. The neck of the condyle was isolated in order to liberate it from the newly formed tissue—partly fibrous and partly bony. This maneuver, when completed, allowed the author to pass behind it the curved portion of a spatula to protect the internal maxillary artery. He proceeded then with the resection of the condyle and the upper end of the neck. The lower jaw could now be easily mobilized, as the articulation of the opposite side offered only slight resistance. To complete the intervention, the operator resected a rectangular flap of the temporal aponeurosis, with its base in the zygomatic arch, and inserted it in the breech, fastening it loosely with a few sutures about the neck of the condyle, performing thus a partial arthroplasty after the method of Murphy. The tissues were reconstructed and the skin incision was closed, but a narrow strip of gauze was left in the wound as a tampon. The author was ready to perform a tracheotomy in case grave asphyxia developed. The postoperative course was uneventful. On the third day the small tampon was removed, and the wound healed rapidly. For a few days only, the mouth was found open from time to time; then, soon, the patient began to masticate some food—preferably toast. To protect the blood vessels, the author found it useful in his case to use instruments with a rather sharp curve in order to overcome the differential level of the two planes—the surface and the deep-lying tissues. It is important that the curved instrument can be easily inserted behind the condyle and constitutes a strong resistance in the resection procedure. It is useful, too, to apply pressure to the other end of the instrument, after the manner of a lever.

46: 1149-1188 (July 21) 1930

Pseudotuberculous Pharyngeal Febricula and Pseudotuberculous Rhinopharyngobronchitis. U. Baccarani.—p. 1151.
Experimental Researches on Variations in Electrolytes in Normal Skin and in Edematous Skin. G. Santojanni.—p. 1155.
*Nonsurgical Treatment in Ureteral Calculosis. P. Pieraccini.—p. 1156.
Block of Right Branch of Bundle of His, with Auricular Fibrillation. M. Sorrentino.—p. 1161.

Results of Nonsurgical Treatment in Ureteral Calculosis.—Pieraccini concludes: Before subjecting to surgical intervention a patient who presents a calculus wedged in the ureter—especially if the calculus is small and localized in the lower portions of the duct, and is not associated with serious pyelo-ureterovesical inflammatory conditions, it is always indicated to resort to nonsurgical instrumental therapy. Even if the disorder presents all or some of the aforementioned characteristics, one may still hope for a spontaneous emission of the concrement by the administration of diuretics and by subjecting the patient to an appropriate diet. In many statistics in which the percentage of cures effected by instrumental nonsurgical treatment is high, no doubt many cases are considered as successes in which elimination of the calculi would have taken place spontaneously. According to the statistics of Taddei, in cases of recent involvement in which the patients are carriers of small, noninfected calculi in a low position in the ureter, spontaneous expulsion occurs in about 50 per cent of the cases in from six days to one month from the discharge of the patient from the clinic, which interval corresponds closely to the interval between the day on which ureteral catheterization was performed and the day on which the stone was passed.

Siglo Médico, Madrid

86: 57-80 (July 19) 1930

*Functional Synergy of Mastication and Elevation of Upper Eyelid. M. Marín Amat.—p. 57.
*Treatment of Anthrax. F. Jofré de Villegas.—p. 60.
Left-Sided Strangulated Inguinal Hernia Caused by Exertion. V. Fidalgo Tato.—p. 64.

Functional Synergy of Mastication and Elevation of Upper Eyelid.—Marín Amat reports the case of a child, aged 8, whose parents (in whom there was no consanguinity) and six brothers and sisters were normal. The general physical and mental condition of the child was normal, except for a typical synergy of mastication and elevation of the right upper eyelid. The abnormality was congenital, unilateral and accompanied by total ptosis of the eyelid. The eye opened only while the child either opened his mouth or moved his lower jaw to the left. When the eye was opened a paralytic covergent strabismus (caused by paralysis of the external rectus) was observed. The acuity of vision was normal in both eyes. The pathogenesis and treatment of this condition are unknown. An origin, similar to that of other synergies (in which a functional association of the cerebral nerves has been held responsible for the condition) is suspected in these cases. The author reviews the literature and makes reference to a personal observation (previously reported) in which the inverse phenomenon existed (the eye was constantly open and closed only when the mouth was opened). Two hypotheses are given to explain the phenomenon: (1) the intervention of motor fibers arising from the masticator nerve (in the motor portion of the trigeminus), by exercising an abnormal influence on the levator palpebrae superioris muscle, and (2) the presence of an anastomosis between the nuclei of origin of both cerebral nerves between which the functional synergy exists. The only scientific proof is the electrical exploration of the oculomotor nerve in its entire course. The most plausible explanation of the case under discussion seems to be that the functional synergy between the levator palpebrae superioris muscle (innervated by the oculomotor nerve) and the depressor muscle of the inferior maxilla (innervated by the masticator nerve) is caused by the presence of an abnormal peripheral anastomosis between the oculomotor and the masticator nerves.

Treatment of Anthrax.—Jofré de Villegas says that success in the treatment of anthrax depends on early diagnosis and treatment. As soon as anthrax is diagnosed a crucial incision with the thermobistoury is made, giving some points of cauterization around the anthracic area to limit the edema. At the same time 30 cc. of antianthrax serum is given and the dose is repeated the next day. These two first injections of antianthrax serum should be given intravenously to avoid the rapid propagation of the infection in the blood. From the third day of the treatment on, the dose of antianthrax serum should be reduced to 10 cc. daily for the next four days and should be given subcutaneously. The patient should receive also tonic and stimulant drugs to maintain him in the best possible condition. The author has treated eighteen persons with anthrax by the combined treatment of thermocautery and anthrax serotherapy and twelve by the administration of antianthrax serum alone. In each of the groups only one patient died. The author considers that the use of serotherapy should be generalized. By this method the suffering inherent to cauterization and the presence of scars may be avoided. The mortality rate is small (8 per cent in the author's cases).

Deutsche medizinische Wochenschrift, Berlin

56: 1335-1378 (Aug. 8) 1930

*Treatment and Prognosis in Cerebral Abscess. W. Uffenorde.—p. 1335.
Practical Significance of Differentiation of Types in Paratyphoid Group. E. Boecker and F. Kauffmann.—p. 1339.
Effect of Mixture of Insulin and Sodium Desoxycholate on Blood Sugar Curve. R. Kühn.—p. 1341.
Prophylaxis of Diphtheria in Institutions by Means of Loewenstein's Diphtheria Ointment. E. Urbanitzky.—p. 1342.
*Counteracting Fatal Hemorrhages During Puerperium. K. Heim.—p. 1344.
Orthopedic and Medicinal Treatment in Disorders of Vertebral Column Accompanied by Stiffness. E. Bettmann.—p. 1347.

Treatment and Prognosis in Cerebral Abscesses.—According to Uffenorde, the pathologic anatomy in abscesses of the brain shows that during their treatment complications may be caused by the virulence of the pathogenic micro-organisms, by a progressive encephalitis or by perforation into the ventricle. These complications occur not only in otogenic and rhinogenic but also in traumatic abscesses. The author discusses le Maitre's method and then describes his own procedure. He thinks that his method of opening the abscess and of careful drainage is the more advantageous. He employed it in twenty-four patients, fourteen of whom recovered.

Counteracting Fatal Hemorrhages During Puerperium.—Heim points out that the prevention of fatal hemorrhages is one of the most serious problems in obstetrics. There is danger of fatal hemorrhage in placenta praevia, in premature detachment of the placenta, in lacerations and in atony of the uterus. The author reports the clinical histories of two cases of atony with uterus arcuatus and with lacerations of the cervix uteri. As a result of delayed treatment, death from hemorrhage was imminent. However, the patients were saved by a blood transfusion and by the simultaneous extirpation of the uterus. Occasionally there occur cases of atony in which the conservative methods, even if applied early, bring only temporary improvement. In such instances it is often difficult to decide whether blood transfusion alone will be sufficient or whether the exclusion of the source of hemorrhage by means of total extirpation is necessary. The author thinks that in such cases the vaginal method for removal of the uterus is advisable.

56: 1379-1422 (Aug. 15) 1930

Diagnosis and Treatment of Nervous Disorders in Children. C. Pototzky.—p. 1379.
Influence of Female Pituitary Preparation on Genitalia of Male Rats. H. Boeters.—p. 1382.
Observations on Carbon Dioxide Poisoning in Mine Disaster at Neurode. G. W. Parade.—p. 1385.
*Postmenopausal Hemorrhages as Sign of Cancer of Uterus. E. Zweifel. —p. 1388.
*Indirect Injuries from Roentgen Rays. H. Lossen.—p. 1391.
Elimination Pyelography with New Contrast Medium. H. Bronner and J. Schüller.—p. 1393.
*Disorders Caused by Electric Current That Develops When Two Different Metals are Used in Dental Work. A. Lippmann.—p. 1394.

Postmenopausal Hemorrhages as Sign of Cancer of Uterus.—A review of the literature and observations at the women's clinic in Munich convinced Zweifel that about 80 per cent of postmenopausal hemorrhages are caused by cancer. He stresses that, in all cases of postmenopausal hemorrhages, cancer of the genitalia should be thought of and a thorough gynecologic examination should be made. Only when such an examination reveals a different cause for the hemorrhage, may it be concluded that cancer is not present. If not caused by malignant growths of the genitalia, the hemorrhages may be due to erosions, polypi or decubital ulcers. Such causes can be detected by the general practitioner. Whenever the diagnosis is not clear, exploratory curettage should be done. Thorough examination is also necessary in hemorrhages during the menopause because about one third of these are likewise due to cancer. In the conclusion the author emphasizes that in cases of menopausal or postmenopausal hemorrhage it is unpardonable negligence on the part of the practitioner to omit the gynecologic examination. By an expectant attitude and medicinal treatment much valuable time may be lost, whereas an early diagnosis would save the patient's life.

Indirect Injuries from Roentgen Rays.—Lossen reports the case of a man who had been given roentgen treatment on account of psoriasis. Neither during nor after the irradiations did roentgen ulceration become manifest. However, about two years later, the man sustained an injury on the right elbow and an ulcer appeared which represented the aspects of a typical roentgen ulcer and required three years for healing. Some time after that there developed without apparent cause a roentgen ulcer on the left arm. The patient commenced a lawsuit against the physician who had given the roentgen treatment. The first question to be answered was whether the physician was justified in employing roentgen therapy. To this a positive answer could be given, because in psoriasis that is refractory to other treatments roentgen irradiation is considered advisable by most authorities. Investigations regarding the method employed by the physician revealed that the technic also had been correct. The author thinks that indirect roentgen injuries are due to a hypersensibility to roentgen rays on the part of the patient. He then discusses various factors that might be the cause of the hypersensibility. In the conclusion it is pointed out that the causes of such indirect roentgen injuries cannot always be completely determined. Then the author stresses that the patient has to be given instructions regarding the care of the skin after irradiations. When roentgen injuries develop, a specialist should be consulted immediately. The German Roentgen Society makes a special study of the prevention of roentgen injuries.

Disorders Caused by Electric Current That Develops When Different Metals are Used in Dental Work.—Lippmann gives the clinical histories of two patients who had severe headaches, felt weak, were nauseated, lacked appetite, had increased flow of saliva, complained of a burning sensation on the tongue, and found that all foods had a metallic taste. The first patient was toothless. At first she had one gold prosthesis and one india-rubber prosthesis and she felt well. However, when the india-rubber prosthesis broke, it was replaced by one of tin and now the disturbances became manifest. The true cause of the disorders was at first not recognized and a renal disturbance was thought of. The patient remained in bed and did not wear her prostheses and the symptoms disappeared. However, when the prostheses were again replaced the same symptoms recurred. When the true cause was recognized the one prosthesis was again replaced by an india-rubber one, and now the patient gradually recovered. In the second patient a mixture of metals, namely, copper, zinc and lead, had been used for bridge work but they had been incompletely fused. Some copper and zinc crystals remained separate and therefore the alloy did not act as one metal but as two and an electric current developed. The author concludes that if two different metals are present in the mouth an electric current develops. This causes nervous and various other disorders. By electrolysis small portions of the metals disintegrate and it is probable that copper and zinc in ionic form may cause chronic poisoning.

56: 1423-1466 (Aug. 22) 1930

Prognosis of Puerperal Pyemia. R. Schröder.—p. 1423.
*Investigations on Carotin and Vitamin A. L. K. Wolff, J. Overhoff and M. van Eekelen —p. 1428.
Clinical Aspects of Vaccination Encephalitis. A. Eckstein, H. Herzberg-Kremmer and K. Herzberg.—p. 1429.
*Is Paroxysmal Tachycardia an Allergic Disease? R. Luria and Wilensky. —p. 1430.
Significance of Sympathetic Inhibitions in Skin for Development of Secondary Syphilitic Skin Eruptions. E. F. Müller and E. Delbanco. —p. 1433.
Multiple Tuberculous Foci in Vertebral Column. H. Berger.—p. 1435.
Diagnosis and Therapy of Disorders of Acoustic Nerve. G. Claus.—p. 1436.

Investigations on Carotin and Vitamin A.—Wolff et al. made animal experiments that confirmed the observations of other investigators, who found that disorders which result from a lack of vitamin A may be counteracted by carotin. However, certain reactions indicated that carotin and vitamin A are not identical. The authors describe the methods that make it possible to separate the vitamin A content from carotin. They determined the vitamin A content and the carotin content in several vegetable and animal products, and they came to the conclusion that in plants vitamin A is either entirely absent or occurs in minute quantities that cannot be detected. The source of vitamin A is carotin. The latter is changed by the animal organism into vitamin A. In animal products, both substances can be detected. Tests showed that egg yolk and butter contain both carotin and vitamin A. Liver and cod liver oil, however, contain almost exclusively vitamin A.

Is Paroxysmal Tachycardia an Allergic Disease?—Luria and Wilensky describe the case of a woman with paroxysmal tachycardia. The anamnesis revealed that the attacks were especially severe following ingestion of large amounts of sweets, particularly raisins and new honey. When the patient was put on a lactovegetarian diet from which all sweets were excluded, the attacks of tachycardia ceased. Later the patient was given honey cake with raisins, and an attack followed. When she was given 100 Gm. of old honey tachycardia did not develop, but the ingestion of 200 Gm. of raisins was followed by a severe attack. The patient was ordered to abstain entirely from raisins and now the attacks did not recur. In order to determine whether the woman was hypersensitive to sweets or carbohydrates, cutaneous tests were made with starch, apples, honey and raisins. Control tests were made on a normal person. Repeated tests revealed that the patient was hypersensitive to extracts from raisins and honey. In the conclusion the authors point out that the observations in this case indicate that perhaps some cases of paroxysmal tachycardia are due to allergy. They recommend the further investigation of this problem.

Klinische Wochenschrift, Berlin

9: 1529-1568 (Aug. 16) 1930

Extrarenal Elimination of Water and Its Clinical Significance. H. Heller.—p. 1529.
*Disturbances in Carbohydrate Metabolism in Exophthalmic Goiter. B. Kugelmann —p. 1533.
Symptomatic and Etiologic Treatments in Sympathetic Functional Disturbances: Pathology and Therapy of Itching. W. Brack.—p. 1534.
Lymphogranulomatosis Inguinalis Identical with Condition Formerly Designated as Strumous Buboes. W. Frei.—p. 1537.
Nature of Allergens: Specificity of Pollen Allergens. L. F. Loeb.—p. 1539.
Experiments on Serodiagnosis of Cancer: Use of Step Photometer in Kahn's Albumin A Reaction. W. Bachmann.—p. 1540
Comparison of Reactions After Kahn's Method of Determination of Albumin A with Step Photometric Reading and After Botelho's Test Performed According to Two Different Methods. W. Bachmann and F. Schmidt.—p. 1541.
Mode of Dissemination of Primary Intestinal Actinomycosis. H. Nathan. —p. 1543.
Changes in Ion Groups in Serum During Eclampsia. H. Rossenbeck. —p. 1545.
*Treatment of Morphinism with Combined Administration of Insulin and Dextrose. G. Anton and J. Jacobi.—p. 1547.

Lipodystrophy in Children Receiving Insulin Injections. R. Priesel and R. Wagner.—p. 1548.
Specific Dynamic Action and Adiposogenital Dystrophy Before and After Treatment with Hypophyseal Preparations. F. Halla.—p. 1549.

Disturbances in Carbohydrate Metabolism in Exophthalmic Goiter.—Kugelmann performed levulose tolerance tests on healthy persons and on patients with exophthalmic goiter. In the morning the blood sugar content was tested while the persons were still fasting. Then 100 Gm. of levulose was administered and blood sugar tests were made first after fifteen minute intervals and then after thirty minute intervals. In healthy persons the blood sugar increases slightly but within two hours has again reached the normal level. In patients with exophthalmic goiter the increase is considerable and even three hours after the administration of the levulose the blood sugar is still much higher than normal. On the basis of his observations the author concludes that in the liver in thyrotoxicosis the glycogen depots are depleted, and the liver is no longer capable of changing large quantities of levulose into dextrose and of storing the dextrose. This demonstrates that in exophthalmic goiter there exists a functional disturbance of the liver, which becomes manifest in the pathologic behavior of the intermediate carbohydrate metabolism.

Treatment of Morphinism with Combined Administration of Insulin and Dextrose.—Since several investigators had detected an abnormal carbohydrate metabolism in morphine addicts, namely, a reduced blood sugar content, Anton and Jacobi attempted to treat morphinism with insulin and dextrose. They give case reports of three morphine addicts. Two or three times daily the patients were given 10 or 15 units of insulin. The insulin injections were combined with the peroral administration of 50 Gm. of dextrose. The result of the treatment was that the abstinence symptoms were negligible or were entirely absent, the patients gained in weight and strength and the psychic equilibrium was quickly restored. The authors point out that observations on only three cases do not permit a final evaluation of the method. However, the good results obtained in these cases justify the further investigation of the treatment.

Medizinische Klinik, Berlin

26: 1175-1212 (Aug. 8) 1930

Clinical Aspects of Allergic Diseases. H. Kammerer.—p. 1175.
*Therapy of Bronchial Asthma. Woldrich.—p. 1179.
Diagnosis of Ovarian Tumors. Benthin.—p. 1180. C'td.
Radio-Ulnar Synosteosis. H. Hefter.—p. 1184.
Late Injuries in Children After Forceps Delivery and After Version. H. Krukenberg.—p. 1186.
Pathogenesis of Optic Aura. H. Hoff and T. Hoffmann.—p. 1087.
Plastic Surgery of Nasal Septum for Saddle Nose. O. Heinemann.—p. 1188.
Nature of "Secondary" Septic Focus. H. Bonheim.—p. 1189.
Treatment of Infants Borne by Women Addicted to Morphine. R. F. Weiss.—p. 1192.
Simplified Conglobation Reaction: Its Acceleration by Means of Centrifugation Method. R. Müller.—p. 1193.
Dry Bed for Infants. Sepke.—p. 1195.

Therapy of Bronchial Asthma.—According to Woldrich the therapy of bronchial asthma should be based on a careful anamnesis. Then skin tests should be made in order to determine the specific allergy. In the majority of cases that came under the author's observation, the anamnesis revealed attacks of pneumonia and chronic bronchitis. Cutaneous tests with a mixture of staphylococci and streptococci gave positive results in 63 per cent of the cases. Other patients showed hypersensibility to dust, pollen, hairs of animals, climatic conditions and foods. The investigations proved that in the majority of cases vaccine therapy was necessary. The author prepared the vaccines either from the sputum or from the nasal secretion. In 37 per cent of the cases the cure was complete and in 45 per cent improvement was noted. In 18 per cent there was no change. Autovaccines brought better results than other vaccines. In cases of dust hypersensibility, attempts were made to remove the cause and the results were generally favorable.

26: 1213-1246 (Aug. 15) 1930

*Protein Therapy in Angina Pectoris. R. Schmidt.—p. 1213.
Nervous Sequelae of Traumas. M. Reichardt.—p. 1214.
Diagnosis of Ovarian Tumors. Benthin.—p. 1216. C'cn.
Relation Between Migraine and Allergy. L. Hahn.—p. 1219. C'td.
Course of Fever in Malariotherapy of Syphilitic Disorders of Central Nervous System. F. Puntigam.—p. 1221.
Various Methods for Treatment of Leukorrhea. A. W. Bauer.—p. 1223.
Clinical Experiences with Guttadiaphot Method According to Meyer-Bierast-Schilling. P. von den Trappen.—p. 1225.
Experiences with Meinecke's Clarification Reaction. E. Kadisch.—p. 1226.
Abdominal Symptoms in Hemophilia. G. Scherk.—p. 1227. C'td.
One Year's Experience with Chiniofon Preparation in Treatment of Leukorrhea Caused by Trichomonas Vaginalis. M. Rodecurt.—p. 1228.

Protein Therapy in Angina Pectoris.—Schmidt is of the opinion that in cases of angina pectoris the favorable effects of muscle extracts and also of heart hormone preparations are not due to hormonal action but represent a protein therapy. The author discusses two forms of angina pectoris. In the first form, which is caused by thrombosis of the coronary arteries, protein therapy is not effective. The second form, designated by the author as "exertion" angina, differs from the first in symptomatology as well as in pathogenesis. Great fear, manifestations of cardiac insufficiency and decrease in the blood pressure are absent in this exertion angina and the pulse is usually especially strong. Observations in many cases of exertion angina convinced the author that it is a sympathetic neuralgic condition that increases as the result of abnormal vasomotor reflexes. The protein therapy influences the sympathetic neuralgia as well as the vasomotor disturbance. The author is of the opinion that in many instances of exertion angina the cardiac plexus may show anatomic changes and it may also be caused by such conditions as syphilis, tuberculosis, nicotinism, metabolic disorders with glycosuria and concrement formations in the urinary and biliary tracts, endocrine disorders, chronic affect conditions, and mental strain. Because of these conditions other symptoms such as sciatica, lumbago, arthralgia and myalgia are often noted. Between the attacks of angina pectoris the chronic neuralgic condition of the cardiac plexus becomes manifest in points that are sensitive to pressure. In the highly sensitive cardiovascular plexus even minor conditions may cause a sympathetic neuralgia. Although neuralgic conditions can be influenced by protein therapy, there is usually a negative phase during which the painfulness increases temporarily. That abnormal vasomotor reflexes are involved in exertion angina is proved by such symptoms as urticaria, wheal reflex, Quincke's edema, chills and spasmodic yawning. Meteorological conditions such as changes in atmospheric pressure, electrical storms and fog as well as psychic factors influence the vasomotor action. This indicates that a certain relation exists between constitutional asthma and exertion angina. And since the beneficial influence of protein therapy has been demonstrated in constitutional asthma, it may be expected that the abnormal vasomotor reflexes in exertion angina may likewise be influenced by protein therapy. The author's experiences with protein therapy are limited to a small number of cases and he therefore refrains from a final evaluation but he recommends this therapy for further investigation. He thinks that complications from protein therapy may be avoided by the use of glyceryl trinitrate.

Münchener medizinische Wochenschrift, Munich

77: 1353-1394 (Aug. 8) 1930

Dysraphic Anomalies as Pathogenic and Pathoplastic Factors. E. Guttman and J. Lange.—p. 1353.
Indications for Resection of Nasal Septum. H. Richter.—p. 1354.
*Disturbances in Vertebral Column After Amputation of Thigh. G. Karfiol.—p. 1356.
Significance of Blood Group in Malariotherapy. C. Speierer.—p. 1357.
Hemorrhage from Mucous Membrane of Larynx During Sepsis as Cause of Suffocation. E. Zimmermann.—p. 1357.
Differential Diagnosis of Acute Appendicitis and Typhoid. A. Frenkel.—p. 1359.
*Treatment of Local Infections with Cautery. C. von Bramann.—p. 1359.
Treatment of Paratyphoid B by Intravenous Injections of Acriflavine Hydrochloride. O. Boyksen.—p. 1362.
Experiences with Riedel's Mixture of Anesthetics Administered by Means of Ombrédanne's Mask. Horn.—p. 1364.
Ether-Chloroform Anesthesia with Ombrédanne's Apparatus. Hild.—p. 1365.
Modification of Ombrédanne's Mask and Simple Supporting Device. H. Franken.—p. 1366.
Supporting Device for Ombrédanne's Mask. Oberhofer.—p. 1367.
Unusual Complications of Influenza. F. Franke.—p. 1367.
Poisoning with a Barbital Preparation. Langendorff and Woll.—p. 1368.
Therapy of Phlebitis. K. W. Fischer.—p. 1368.
Value of Franken's "Air Test" for Determining Intactness of Placenta. H. Franken.—p. 1369.

Disturbances in Vertebral Column After Amputation of Thigh.—Karfiol asserts that pains in the stump in patients in whom the thigh has been amputated have their origin frequently in the vertebral column. They are due to the overburdening that is caused by suspending the prosthesis from the shoulders. To overcome these difficulties it is advisable to attach the prosthesis to the pelvis.

Treatment of Local Infections with Cautery.—Von Bramann reports that at the surgical clinic of the university of Berlin the thermocautery was used during the last two years in 209 cases of local infections; namely, in 102 cases of progressive phlegmon, 66 abscesses, 35 cases of chronic osteomyelitis, 4 cases of emphyema of the joints, 1 case of carbuncle of the kidney and 1 case of pyelonephritis. The technic of thermocauterization in cases of phlegmons or abscesses is as follows: The phlegmon is incised in its entire length, and all cavities and pockets are opened. Then the granulations are removed with a sharp curet. Necrotic tissues are removed with the knife or with scissors. The vessels are seized but are not ligated until after the cauterization. The open wound is cauterized with Hadenfeldt's instrument. The muscular surface is thoroughly seared until an eschar is formed. The under surface of the skin, however, is cauterized only slightly or not at all, so as to avoid gangrene. Tendons, larger vessels, nerves and bones should not be cauterized. Following arrest of hemorrhage the wound is closed with a lacing bandage, which is covered by a second bandage. The dressing should not be changed until eight days after the operation. The pains, which before the operation are usually severe, cease entirely or partly immediately after the operation. The author gives detailed reports of cases that showed unusual aspects and also of those which had a fatal outcome. The reports show that thermocauterization does not always prevent erysipelas. However, the favorable results prove that, if employed correctly, it is a reliable method for the treatment of progressive phlegmons. For the therapy of phlegmons of the tendon sheath cauterization is not advisable, because neither the tendon nor the sheath of the tendon should be burned. But if the phlegmon spreads to the arm, then thermocauterization should be resorted to. Its advantages are the small scar, the elimination of tamponade, of drainage and of frequent changes of dressing, and the rapidity of healing.

Wiener klinische Wochenschrift, Vienna

43: 1021-1048 (Aug. 14) 1930

Observations During Tests of Competence of Heart and Circulation. F. Gaisböck.—p. 1021.
Modern Methods of Anesthesia. E. Domanig.—p. 1026.
Rudimentary Polyserositis. H. Mayrhofer.—p. 1031.
Roentgen Therapy of Para-Urethral Infiltrates. S. Grauer.—p. 1032.
*Segmental Neuralgia in Appendicitis. E. Czyhlarz.—p. 1033.
Prophylaxis of Rickets by Irradiation or by Internal Treatment? K. Peyrer.—p. 1033.
Early Treatment of Syphilis by General Practitioner. M. Oppenheim.—p. 1034.
Idem. W. Kerl.—p. 1035.
Physiologic Principles in Feeding of Patients with Tuberculosis. A. Durig.—p. 1036.

Segmental Neuralgia in Appendicitis.—Czyhlarz reports the case of a young woman who complained of severe pains in the right side. They radiated from the region of the lumbar vertebrae and extended to the region of the appendix. Movement of the right leg did not increase the pain. Pressure on McBurney's point was not painful and Rovsing's sign was likewise negative. Especially striking was the intense pain that was caused when the skin in the region of the appendix was pinched gently, and even superficial stroking of this region was painful. Another peculiar symptom was a point painful to pressure at the right of the first and second lumbar vertebrae, the point corresponding to the exit of the intercostal nerves. Because most of the appendicitis symptoms were absent, it was thought that the pains either were of a functional origin or were symptomatic of a neuralgia similar to the herpes zoster syndrome. The examination on the following day gave the same results. On the third day, however, the symptomatology had changed and now indicated appendicitis. An operation was performed and the patient recovered rapidly. The author asserts that formerly he had observed a similar case. Concerning the development of the peculiar aspects of appendicitis he advances the following theory: During an acute inflammation of the appendix, the pathogenic organism was carried by the lymphatic system to the paravertebral lymph nodes, and here the infection spread to the nerve segment and as a result the symptoms of a segmental neuralgia appeared. When the process in the appendix developed, it became more painful and the local symptoms of appendicitis became more noticeable.

43: 1049-1076 (Aug. 21) 1930

Relation Between Constitution and Diseases of Gastro-Intestinal Tract. H. Schur.—p. 1049.
Treatment of Skin Diseases by Means of Grenz (Infra-Roentgen) Rays with Special Consideration of Dosage. H. Fuhs and J. Konrad.—p. 1053.
*Rheumatism as Cause of Static Flatfoot: Rheumatic Flatfoot. A. Saxl.—p. 1057.
Significance of Extrasystolic Arrhythmia in Estimating Capacity for Work. W. Fischer.—p. 1059.
*Etiology and Symptomatology of Aneurysms of Cerebral Vessels. H. Steininger.—p. 1062.
Pneumothorax Treatment not Advisable in Tuberculous Patients with Emphysema. F. Hoffschulte.—p. 1064.
Surgical Therapy of Hyperthyreosis. B. Breitner.—p. 1065.
Value of Ferrán's Tuberculosis Therapy. O. Felsenfeld.—p. 1066.
Treatment of Suppurative Bartholinitis. K. Czerwenka.—p. 1067.

Rheumatism as Cause of Static Flatfoot: Rheumatic Flatfoot.—Saxl shows that, if rheumatic inflammations of the musculature, of the tendon sheaths or of the bursae in the lower extremities become chronic, an insufficiency in the function of the foot may be the result and static flatfoot develops. This condition differs from rheumatic flatfoot, which develops from an inflammation of the joints of the foot. To differentiate the two conditions is significant for the therapy. In rheumatic flatfoot the articular rheumatism should be treated first. Rest in bed and the administration of salicyl preparations are recommended. Following the cure of the arthritic process, orthopedic treatment should be instituted if necessary. In cases of static flatfoot the orthopedic treatment is of primary importance.

Etiology and Symptomatology of Aneurysm of Cerebral Vessels.—Steininger describes two cases of rupture of cerebral aneurysm and reports the results of the postmortem examinations. In both cases the aneurysm was caused by a trauma. In the first patient the trauma had occurred six years previously, in the second patient fifteen years previously. In both instances, diseases of the walls of the vessels were absent. The rupture of the aneurysm was sudden in both patients; however, severe headaches, of several months' duration, had preceded the rupture. The two cases demonstrate that cerebral aneurysm may have a traumatic cause. Other more frequent causes of cerebral aneurysm are arteriosclerosis, embolism, hypoplasia of the vessel walls and syphilis. Aneurysms of traumatic origin may exist for long periods without showing symptoms. In the cases reported, the rupture followed excessive use of alcohol and appendectomy, respectively. In discussing the symptomatology of cerebral aneurysm, the author stresses especially those symptoms which aid in the differentiation between tumor of the brain and cerebral aneurysm. If arteriosclerosis, syphilis or embolic processes exist, aneurysm is probable. Many cerebral aneurysms rupture repeatedly and give rise to successive exacerbations. When such repeated exacerbations are noted and when at such times spinal puncture yields bloody fluid, cerebral aneurysm should be thought of.

Zeitschrift für Tuberkulose, Leipzig

57: 209-288 (July) 1930

*Resistance to Tuberculosis. B. Lange.—p. 209. C'cn.
Precavernous Ring Shadows and Spontaneous Healing of Caverns. H. H. Knusli.—p. 228.
Pneumothorax Treatment in Manual Laborers. O. Neuburger.—p. 232.
*Oxygen Inhalations in Tuberculosis. W. Oksiusow.—p. 240.
Tuberculosis in Relation to Psyche. E. A. Schnieder.—p. 252.
Social-Psychologic Significance of Spread of Tuberculosis. G. Ichok.—p. 255

Resistance to Tuberculosis.—In experiments on animals it was found that the virulence of tubercle bacilli obtained from persons with tuberculosis was frequently inversely proportional to the severity of the disease. Although strains of tubercle bacilli of decreased virulence were usually found in persons with mild forms of tuberculosis, nevertheless cases were observed in which a fatal outcome was produced by strains of tubercle bacilli of decreased virulence and, conversely, a case of bone tuberculosis of slight severity was observed in which the strain of tubercle bacilli isolated was of great virulence. Lange concludes, therefore, that the clinical course of tuberculosis is influenced less by the virulence of the tubercle bacilli than by the resistance of the patient.

Oxygen Inhalations in Tuberculosis.—On the basis of his observations in thirty-three cases, Oksiusow makes a preliminary report on the treatment of tuberculosis by means of oxygen inhalations. He states that the inhalation of pure oxygen through a respirator increases greatly the assimilation of food by undernourished tuberculous patients who cannot accustom themselves to the large rations used in sanatoriums. An observation period of two or three weeks should precede the oxygen inhalations. This form of treatment is indicated particularly in persons with compensated tuberculous processes who do not gain weight under routine sanatorium treatment. The technic of administration of oxygen inhalations is not complicated. Apparently the inhalations of oxygen cause hypoglycemia and this results in an increased activity of the insular apparatus of the pancreas. Of the thirty-three patients, three (one with hemoptysis and one with endocarditis) did not improve and five had been gaining weight before the treatment was begun. The remaining twenty-five, however, gained 72.87 Kg. in forty-seven days of treatment. It is therefore recommended that oxygen inhalations be tried in a large tuberculosis sanatorium.

Zentralblatt für Gynäkologie, Leipzig

54: 2049-2112 (Aug. 16) 1930

Justification and Means for Bringing Drugs for Alleviation of Pains of Childbirth to Every Woman. H. Sellheim.—p. 2050.
Saving Mother and Child· Review of Cesarean Operations During 1929. H. Doerfler.—p. 2054.
*Diabetes Insipidus During Pregnancy. K. J. Anselmino and F. Hoffmann —p. 2061.
*Fluctuations in Bilirubin Content of Blood During Puerperal Infection. N. A. Woskressenski.—p. 2068.
Complete Incontinentia Alvi Following Schubert's Operation for Plastic Formation of Vagina. E. Melzner.—p. 2072.
Bilateral Paralysis of Peroneus Post Partum. E. Zimmer.—p. 2075.
Experiences with New Decapitation Instrument. S. Sztehlo.—p. 2080.

Diabetes Insipidus During Pregnancy.—Anselmino and Hoffmann report a case in which diabetes insipidus became manifest in two successive pregnancies and disappeared again during the first days of the puerperium. The diagnosis diabetes insipidus was based on the determination of the sodium chloride content of the blood and of the urine during thirst periods and during water tests. The examinations of the blood and of the urine revealed that this case of diabetes insipidus was of the type that is characterized by hypochloremia and hyperchloruria. On the basis of the Hann-Jacobi theory, according to which diabetes insipidus is due to a disturbance in the equilibrium between the secretions of the anterior lobe of the hypophysis and its posterior lobe (an excessive secretion of the anterior lobe causes diabetes insipidus) the authors reason that in this case the isolated manifestation of the disease during two gravidities may be explained as follows: A syphilitic infection caused a functional deficiency of the posterior lobe. Under ordinary conditions this deficiency was latent. However, during pregnancy the functional capacity of the organ was taxed more and the deficiency became manifest.

Bilirubin Content of Blood During Puerperal Infection.—After calling attention to the significance of the reticulo-endothelial system in the defense against infections, Woskressenski discusses the relation between the reticulo-endothelial cells and the bilirubin content of the blood. In 116 patients with puerperal sepsis the author repeatedly tested the bilirubin content. In those patients who recovered it was found that, although the values were high in the beginning stage of the sepsis, they decreased until the normal content was reached. In cases with a fatal outcome, however, the blood bilirubin increased steadily. In other instances it increased and decreased, corresponding to exacerbation and to improvement in the septic process. The author comes to the conclusion that in cases of puerperal sepsis the bilirubin curve indicates the prognosis.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

74: 3993-4080 (Aug. 9) 1930

False Diagnosis of Ischialgia. C. T. van Valkenburg.—p 3994.
Symptomatology and Pathogenesis of Exophthalmic Goiter. G C. Bolten. —p. 4002.
*Perforation Symptoms in Appendicitis. R. Finaly.—p. 4019.
Ventriloquism. E. Huizinga.—p. 4023.

Perforation Symptoms in Appendicitis.—Finaly thus sums up: Perforation may occur in appendicitis without high temperature or abnormal pulse frequency in cases in which the closure of the lumen of the appendix and the necrosis of the wall are the result of a mechanical cause and the infection itself is of secondary importance. Under such circumstances, gangrene or perforation may arise before the protecting adhesions have developed. Sudden lessening or cessation of pain is a sign of perforation if that manifestation is followed shortly after by high temperature, increase of defense symptoms and greater pulse frequency. The author warns, however, against regarding the aforementioned manifestation in all cases as a diminution of the process, since the absence of high temperature, almost normal pulse frequency and absence of rigidity in the abdominal muscles may be associated for varying periods with gangrene and perforation. Conservative treatment of appendicitis is contraindicated if the condition of the patient admits an operation, since, if adhesions are present, one cannot wait to see whether they are sufficient to localize the results of a perforation that threatens or has occurred. It will be recalled that the walls of an "infiltrate" are not impermeable for bacteria and toxins. In case of a suspected appendicitis, the physician should not wait until the next day before calling again but should call again in a few hours; for within a short period the true nature of the sickness may be revealed, and by the following day the perforation may be twenty-four hours old and peritonitis may have become generalized.

Hygiea, Stockholm

92: 545-576 (July 31) 1930

Impressions from Study Trip to Germany and Austria. R. Bergman. —p. 545.

Svenska Läkaresällskapets Handlingar, Stockholm

56: 115-210, 1930

*Primary Tuberculosis in Adults. M. Arborelius.—p. 115.

Primary Tuberculosis in Adults.—Intracutaneous tuberculin tests (Mantoux) with doses of up to 1 mg. were performed by Arborelius from 1927 to 1929 in 3,288 Swedish soldiers at the start of military service. Negative results were presented mainly by the men from rural communities, fully one third of whom were free from signs of a previous tuberculosis. In about half of those whose cutireaction became positive during service, other symptoms also appeared which agreed with the recognized signs of primary tuberculosis in children. In the more pronounced cases the primary infection was indicated chiefly by fever, greatly accelerated sedimentation reaction, marked tuberculin reaction and roentgenologically demonstrable pulmonary infiltrations in the hilus region. In some cases the picture was that of an acute bronchopneumonic pulmonary process. In three instances, objectively demonstrable symptoms were present before the cutireaction became positive. In the men with a positive reaction to begin with no cases as described were noted, but in several cases tertiary pulmonary tuberculosis appeared. After-examination was made in 218 out of 260 cases of typical primary tuberculosis in soldiers treated from 1923 to 1927. In almost half of the cases, exudative pleuritis had followed within six months. Of the patients examined up to six years after infection, about 15 per cent had tuberculosis and about 8 per cent had died of tuberculosis. While erythema nodosum often accompanied the primary tuberculosis, a connection between the two seems to Arborelius uncertain. Sixty case reports are given, together with a bibliography containing 359 references.

Ugeskrift for Læger, Copenhagen

92: 711-732 (July 24) 1930

Clinical Examination of Joints, Especially in Rheumatic Disorders: Some Technical Suggestions. H. Jansen.—p. 711.
*Osteochondritis Dissecans Cubiti. L. Ø. Christensen.—p. 716.
Case of Spontaneous Evolution. C. Kirkegaard.—p. 719.
Case of Panner's Disease. E. Busch.—p. 720.
Toxicity of Urine in Pregnancy and New Method for Aschheim-Zondek Reaction: Review. H. Nielsen.—p. 721.
Is "Mixtura Contra Epilepsiam" Contraindicated in Epilepsy? C. Clemmesen.—p. 721.

Osteochondritis Dissecans Cubiti.—Christensen says that this disorder should always be borne in mind in protracted diseases of the elbow in young men. The diagnosis can be verified by roentgen examination. Five cases are reported.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 95, NO. 19 CHICAGO, ILLINOIS NOVEMBER 8, 1930

UNIVERSITY IDEALS AND THE FUTURE OF MEDICINE *

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Secretary of the Medical Research Council of Great Britain
LONDON, ENGLAND

It is a great privilege for all your guests to be allowed to join with you today in this celebration, and to congratulate you upon the achievement of such notable enterprises within your university and medical school.

Today you praise famous men and the fathers that begat you. Today you give thanks for the generosity of all those later benefactors who have enabled you to approach more closely to your ideals. Today you look back with thankfulness on the road you have traversed so far, and you look forward into the puzzling uncertainties of the future, but with high hopes and well grounded confidence.

You have most generously invited two Englishmen to be honored as your guests here today. I doubt whether you can possibly guess in full the thoughts and emotions that must crowd our minds and hearts as we remember your history and as we now join with you in this commemoration of the past, and this dedication to the needs of the future.

Matthew Arnold said that the University of Pennsylvania should be called "the University of Franklin." It was Benjamin Franklin who truly sowed the acorn that has grown into this great tree—this great university—and it was he who carefully attended to the grafting within it of the school of medicine. He saw to it, moreover, that the hospital which he himself had founded was brought within the sphere of the university as it grew. Because of him, you can rightly claim that your medical school was the first British school of medicine planted beyond the seas; and we, on our part, can hail it as the first school of medicine in America.

I hope it will not be thought out of place for me to speak of Franklin here as one of the greatest British subjects that ever lived. It was because of those ideals of liberty and justice and truth that were inborn in him that he became one of the first and one of the greatest of all American subjects, and we Englishmen have the right to share your pride of possession. May I confess that I, perhaps as you do, like to put Benjamin Franklin in that select list of characters whom I should greatly wish, if I could, to meet in the flesh? How we should enjoy his wisdom and goodness, his keen interest in every created thing, his ripe knowledge of men, women and affairs, his perfect manners, and his dry but refreshing and kindly humor.

You think of him today, and you think also of the long succession of leaders and benefactors who have followed him. John Morgan and William Shippen, Benjamin Rush, Caspar Wistar, Robert Hare, Joseph Leidy and William Pepper—William Pepper here is not a name of an individual but of a whole dynasty; these men give your medical school a noble lineage indeed.

As you think gratefully of the lives and work of these men today you will wish so to plan for the future that the great heritage you have received and possess may be guarded and shaped so as to serve the best intellectual and material interests of the generations to come.

ADJUSTMENT TO ADVANCE OF SCIENCE

We stand now indeed at a time of great anxiety and difficulty in the affairs of medical education and its proper development in relation to other studies. Within the lifetime of by no means the oldest in this room today there has been seen a rapid growth of the medical sciences and the medical arts beyond any parallel in any other period of the world's history. Mankind has advanced further in the development of the powers of medicine in the last sixty years than during the whole of the preceding twenty centuries. The generation just passing has seen the emergence of surgery from the murderous shambles that Lister knew, and from which he saved us, to the modern surgical theater with its refined, intricate and merciful arts. It has seen the rise of the science of bacteriology from its very birth. It has seen developments in various parts of biology and chemistry that have given origin to branches of work, each now claiming to be a separate science, and each showing the strong instinct of the young for setting up in its own house in its own way.

This great and recent expansion of the medical sciences and arts has come so rapidly upon us that little time has been given for the necessary adjustments and adaptations either in our ideas or in our buildings. In every university the machineries of finance and instruction have been strained, and a rapid succession of improvisations has been the only possible mode of growth.

In the field of research the whole body of knowledge has been advancing so fast that the individual workers at their various points on its growing borders are in danger of becoming so far separated one from another in the very course of their advance as to lose the fertility that comes from the easy exchange of idea and method. In the field of education our embarrassments have become acute indeed, both for the teachers and for the taught. The unfortunate students of medicine, who are not yet by any compensation of nature endowed with any greater average ability than their predecessors, are now nevertheless obliged when equally young and within the same period of time to acquire a much larger body of detailed knowledge;

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* Read at a convocation held in celebration of recent medical progress at the University of Pennsylvania, Philadelphia, Oct. 10, 1930.

indeed, they must learn in several subjects not far from threefold that which was necessary only a generation ago. In every medical school the teachers feel acutely that circumstances are becoming almost too strong for them and that the medical student is now in danger of receiving not an education worthy of the name but only course after course of hasty and crammed instruction.

The efforts made in the universities of the United States to meet the needs of this time of almost fevered growth and transformation have been most remarkable, and they have been studied with interest and admiration by every other civilized country. You have had some great advantages. You have enjoyed great wealth, and this has been made freely available by private benefactors for enlightened public purposes. You have the fine tradition, sadly lacking still in many parts of Europe, that it is an honorable obligation for the sons of any university to repay some part of their debt of her by helping, according to their means, the expansion of her freedom and power. You have not been afraid to make bold experiments, to tear down buildings not fully efficient, and to adopt the best of what you can devise here or find elsewhere. You have been able by your variety of institutions to proceed, if we view the country as a whole, by the method of experiment, and all other countries have been able to gain by the study of the results, whether found in your educational methods or in your material installations.

Here in Pennsylvania you have had the advantage and the stimulus of possessing the senior of all the medical schools of the new world. Over a hundred years ago you had built more accommodation for your medical school than had been dreamed of then at either Oxford or Cambridge. Over fifty years ago you had taken the daring and original step of building a hospital as an integral part of the medical school within the university, and that is an advance that has not yet been emulated by any university within Great Britain, greatly as it is to be desired. You built a university laboratory of hygiene long before any other existed in Great Britain. You have not allowed, moreover, this early start and your seniority to impede you by any viscosity of conservative tradition. You have torn down and rebuilded, again and again. You now have a constellation of magnificent and well planned buildings, providing for research and education over all the great present fields of medicine. Your visitors here have cast admiring, though sometimes envying, eyes on these results of the planning by devoted and skilful men, and by the generosity of your benefactors.

Benjamin Franklin in his day spoke of the scanty resources to be found in Pennsylvania "in a hundred leagues," as he said "of our vast forests" as compared with those to be found in every part of England, England which he described as "that pretty island which is but like a stepping stone in a brook, scarce enough of it above water to keep one's shoes dry." Those of us who come, as I do, from that "pretty island" may well wonder what Franklin would have thought, and how greatly he would have rejoiced, if he could see the great buildings that now adorn so many acres of Pennsylvanian ground, the outward expression of the intellectual resources you celebrate today.

No doubt you have had your own anxieties here, as we have had in England, during these years of rapid expansion and building—anxieties lest particular endowments and the satisfaction of today's urgent need by buildings of particular kinds should bring, so to speak, a premature static crystallization in stone of the dynamic growth of rapidly advancing sciences. You may have anxieties again lest the funds that have been provided should be absorbed unduly by bricks and mortar, and not adequately invested in the proper maintenance and reward of the scientific workers, without whose ability and labors the buildings would remain an empty shell. All these anxieties yield problems that are to be solved only by trained knowledge and by a sensitive imagination; but they are problems of which the solution as it is worked out must affect for good or ill the development, health and happiness of all the generations to come.

EXTENSION OF MEDICAL SERVICE

William Penn said that the wisest man was he who could see farthest into the future. It would be a very wise man who could forsee in any detail the paths along which medicine is to advance in the days to come, or outline the new territories it will occupy. But we can draw at least some general conclusions from the intricate story of the recent rapid developments. We have to think of these under two main heads, one concerned with the growing extensiveness of medicine in its practical application, the other concerned with the intensive development of the fundamental sciences that serve it.

The very word "medicine" has for all of us, at first sound, and certainly for all laymen, a disagreeably narrow meaning. We think of the drug or mixture prescribed by the doctor in our illness. Doctors' potions indeed, by a curious mischance we must not now examine, have always unfairly attracted to themselves words far too dignified and too general for such narrow uses, whether "medicine" from the Latin, or "physic" from the Greek. Medicine in its proper sense has a far wider and nobler application. It includes all the sciences and all the high arts that the practicing physician or surgeon brings to serve his fellow man in disease or accident. But the true realm of medicine has already extended, and is still extending, far beyond this; more and more, as our knowledge grows, it is coming to have its domination in almost every activity and interest of human life. For one thing, it has become more and more addressed to the arts that are preventive rather than curative. In this audience and in this country I need not refer in any detail to the great and familiar triumphs of modern preventive medicine, whether in the fields of sanitation and hygiene or in the fight against specific tropical diseases. More and more, again, has medicine been brought to meet the practical needs of our modern industrial life and to guard the health, comfort and usefulness of the workers in factory, workshop and mine. You may well be proud in this country of the part your men have played in the development of tropical hygiene and of industrial medicine; brilliant instances of their achievements that have made life easier for the worker or more possible in the tropics will be in the minds of everyone here.

This modern extension of the fields of medical service has indeed been so rapid and far reaching that it is becoming almost difficult to find any department of man's daily business which it does not vitally affect. It may interest you to know that the British government has had recent occasion to find a formula for delimiting the field of medicine, and that which has been adopted by it is the following:

> Medical research deals by no means only with the cure of disease. It deals with the proper development and right use

of the human body in all conditions of activity and environment, as well as with its protection from disease and accident, and its repair.

You will see that in the vast territory here marked out there lies the whole volume of human life in all its daily business to and fro on the earth between the cradle and the grave.

With every year that passes now, moreover, the points of contact between the functions of humanity and what we have still perforce to call "medicine" are fast multiplying. We are bound to expect that the recent growth of medical territory is but little as compared with what our children will see in the coming years. I need point in illustration of this only to two, among the many, new territories, the new continents of knowledge, just opening before us. We are now only in the first dawn of our knowledge of the laws of nutrition, and of the ways in which the state of the body is affected by changes, often almost incredibly minute, in the exact quality of the food supplied to it. Even the successes already won in this field in the prevention of scurvy, of beriberi, of rickets and of deficiencies in teeth only show us dimly the immense possibilities that lie before us here of gaining new powers of controlling health and of evading disease.

We are now only at the dawn, too, of our knowledge of mental processes, and of the intricate links between states of the body and states of the mind. How dare we set any bounds to the empire that must open to us as growing knowledge becomes translated into new powers in education, new powers of finding by scientific method the choice by the individual of the work and career most likely to make him most useful and happy; and new powers again of maintaining or restoring mental health?

These illustrations I give must be so familiar already to you that I shall seem to be guilty of platitude when I say that the physician of the future must find his work to become more and more concerned with those two fields of nutritional science and mental science—with the healthy body and the healthy mind. May I, nevertheless, and in digression, point out to you here that though the practitioner has these two new worlds opening to him in which so great a part of his effective future work must come to lie, yet so rapid has been the advance of knowledge as compared with the motility of human institutions that even now, in Great Britain at least, the medical student receives at no point in his course of study any well based and organized instruction either in the field of nutrition or in that of mental functions. In those fundamental subjects he has to depend at present on little that deserves any better description than that of occasional gossip, while the resulting loss to the community at large is immeasurable.

DEVELOPMENT OF FUNDAMENTAL SCIENCES

While medicine has thus been extending its kingdom and multiplying the fields in which it has practical service to give to mankind, at the same time another development has been marking this age, an intensive development in which medicine has been bringing more fully into her service and discipline the fundamental sciences on which all the arts of medicine depend. The central science of medicine is physiology, the study of the functions of living matter and of the organized body. As knowledge grows the physiologist is taken deeper and deeper into the problems which on the one hand call for the technical methods of the chemist, and, on the other, need the methods of the physicist. In science it is not differences in kinds of knowledge that demand new buildings, but differences in kinds of technical method and apparatus. What was first called physiologic chemistry has now set up in her own chambers as biochemistry. Only thirty years ago there was no professorial chair of biochemistry in Great Britain; now chairs and separate buildings for it are to be found in almost every university. Here similar developments have come with ever greater rapidity and completeness.

The development of physics in relation to medicine seems likely to follow a more complex path. The direct application of physics in aid of the physician and surgeon by means of x-ray photography for diagnosis, and the use of irradiations of divers kinds for curative treatment, have called already for extensive equipments and for specially trained men to use and apply them. But physics is beginning to have a more primary and intimate part to play in biology and medicine than this. I need only mention the advancing study of colloidal states in relation to the processes of the living cell and the functions of the body; or, again, the analysis of the action of light radiations in producing from a given molecule, whether outside the body or on its surface, the still unknown but vital constituent of food—the so-called vitamin D.

Or I might point to the fascinating study by refined optical and other physical methods of those mysterious, elusive and invisible bodies, the so-called viruses. These are the agents of many of the most distressing, most fatal, and most expensive of diseases among men, live stock, and crops; they stand in size between the smallest known unit of living matter and the largest inanimate molecule; and they have almost incredible powers of rapid self-multiplication. Our hope of mastery over them appears to lie largely in the improved application to their study of refined optical and other physical methods.

You have been able to establish here already an institute for medical physics, providing for the development of physical methods useful in practical medicine as well as for the more fundamental researches in what may well be called biophysics. This significant venture will be watched from far and near with great interest and hope. You have happily so planned your scheme as to allow growth of the subject to follow its natural lines, so hard for us now to foresee in detail, and to follow in organic relation on the one side to the arts of medicine, and on the other to the primary sciences of living matter.

I would ask you here to note a feature of great interest in this story of the rise of biochemistry and biophysics—a feature of it destined, I think, to have a fixed importance in the history of medicine. Biochemistry was born the daughter of physiology. Medicine, indeed, has always been the mother of sciences. At the beginning, the trained organic chemist was inclined to think slightingly of his new cousin, the biochemist, who dealt under so great difficulties with material inherently evanescent, and, from the chemist's standpoint, so uncleanly and confusing. Almost everywhere a great change has come in this respect. The pure chemist has come to see that in the living cell are proceeding at great rate, and at low temperatures, transformations that he could have performed himself in the laboratory only at the cost of relatively immense energy and violence. Patient study of the chemical conditions and processes of the cell has already revealed truths of created wonder that otherwise would have lain beyond chemical knowledge. The chemist is now entering into biochemistry not only to bring his long acquired skill to aid medicine but in order himself to make additions to chemical knowledge as such. The time will not be long deferred, as we must believe, before the physicist in like measure will increasingly come not merely to cooperate with those who are advancing medicine, but come so as to find in the world of living matter his own absorbing interest and his own opportunity for gaining new truth.

PLACE OF THE SCHOOL OF MEDICINE

What broad lessons of university policy are we to draw from considerations like these? I have endeavored on a broad view to sketch the double form of growth now manifest in medical development. I have spoken of the extension of its kingdom in every part of human life. I have spoken of its increasingly intensive use of the technical methods belonging to almost every branch of fundamental science. If we find these views of it to be true, what guidance do we gain for the future? To that I think the answer, again on broad lines, is both clear and simple. It is that the school of medicine should be, and should continue always to be, as here it has always been, an integral and organic part of the university. I would not play with words here but think in terms of realities. It is easy to retain a school of medicine nominally and formally within a university, and yet to segregate it as a self-sufficing technological institute. When I speak of a medical school as properly within the university, I mean that it would be embedded within the organic structure of the university, both as to its functional relations and as to its geographic position. It should bear its intimate share in the common intellectual and moral ideals of the complete university body. I would justify that claim on all grounds, whether those of the expediencies of today or those of the ideals that endure through all ages.

Let us take the lowest ground first, the ground of expediency; a school of medicine which is an independent unit, or which is divorced organically from its university in function or in geographic distance, can hardly hope to be more than a school for producing well trained practitioners; it can hardly hope to attract any recruits to the service of medicine other than those who, from the beginning, seek to fit themselves for professional practice. The practice of medicine offers indeed one of the noblest of all callings, and you will not think that I do not hold it in the highest honor. "The skill of the physician shall lift up his head; and in the sight of great men he shall be in admiration." The fields, however, in which medicine has to give service to human life have extended already, as we have seen, and have still to extend, far indeed beyond those of the professional practice of curative medicine. Divorcing a school of medicine from the free current of university life must have a double peril. It must endanger the width of outlook of those who are being trained to enter a profession in which, of all professions indeed, a primary qualification for success is a sympathetic understanding of the ways and thoughts of other human beings. At the same time the isolated medical school is in danger of sacrificing to the visible needs of the practitioner of today those wider destinies which, as we have seen, are now opening so rapidly to medicine over so many and diverse fields of human activity.

If dangers come, as I submit, from a narrowness of outlook that may impede the free development of the service medicine has to give in the future progress of mankind, other dangers again will come in another way and in high degree from any isolation that tends to divorce medical studies from the system of disinterested scientific studies within the university. It is vital to medicine to maintain her increasingly intensive use of the primary sciences. Any secession from the unity of knowledge brought about by the undue segregation of medical studies must pay some penalty in weakness and sterilization. This is no empty phrase. It is a truth which practical experience, both positive and negative, has established again and again in many places. It is a truth of which the working out may come in many different forms of reality.

It may be enough now to point only to the damage done to the recruitment of able minds to the service of medicine, if medicine stands apart as a purely professional study. The history of medicine bears name after name of illustrious men who, with no thought of professional practice, have come into her service, attracted and recruited by some chance contact with her claims and her charms. At no time has this been more evident than in the past generation, and it has been evident just in proportion as university organization has facilitated the best freedom of exchange in men and in ideas among the several sciences and faculties. If the negative experience be sought, it may be found in the relative sterility that has marked those departments of medicine that have been so organized or so placed as to receive only the narrowed stream of students vowed from the beginning to one avenue only of medical service.

These, in outline only, are the arguments based on grounds of practical expediency alone, and they are weighty enough. But there are higher considerations to be taken into mind. Medicine must lose immeasurably if her studies are withdrawn from the atmosphere of university life and the impact of university ideals. The essence of a university lies in that bond of sympathy in a common pursuit which unites all the workers in all her faculties; a sympathy that brings a mutual understanding of the general relations of all branches of knowledge, of their limitations and of their difficulties. It is through this universality of sympathy, and only by making the whole field of knowledge her kingdom, that the university can place her true mark on her sons. It is the simplicity of this single purpose that marks the university, and not the complexity of her studies. The common spirit that unites all her workers is the furtherance of knowledge for its own sake, and the dedication of it to the highest purpose. Can medicine afford to lose her birthright in this community of work and aim? Can any university suffer without grievous loss the abstraction of that reinforcement to her influence that comes from those high intellectual and moral ideals that should be the life blood of medicine?

Some recent events may make us reflect here that the true ideals of a university unite no less within a common bond the universities of all the nations. With this is bound up the instinctive and habitual recognition by every worker of the debt that he owes to his predecessor and contemporaries in all parts of the realm of learning, and of the gain that comes to his own progress from the rapid and untrammeled interchange of knowledge and ideas as they are won by free inquiry. It should rightly be unthinkable that any university giving faith to these ideals should engage in claiming monopoly rights or making financial gain in the practical uses of any piece of knowledge, and least of all that it should exercise any ostensibly legal rights of monopoly so as to cause restrictions of free inquiry elsewhere. Every great step in knowledge won within a given university is based on all the long labors in other universities that gave the earlier steps. To take monopoly value from the accidental chances that link new knowledge with possibilities of commercial profit is to betray the essence of the university spirit. It seems also to be as inexpedient on a long view as it is improper. Rich men have most generously aided the universities of Canada and the United States. Will they be so willing to find help for a university that cares to make large profit by taking for itself the ripe fruit that falls from the tree planted and grown by workers elsewhere throughout the world? If financial gain comes to a university in that way there must arise, moreover, the grave dangers of a vicious indirect influence affecting the outlook of all the individual workers within it. It will be difficult for them not to feel that the university will be more inclined to reward by pay or promotion him who makes some addition to knowledge of an immediately profitable kind rather than him who works for the sake of knowledge itself. Nothing could be more disastrous than this, as we know, to the advancement of knowledge itself, and in the long run, indeed, to the material gains of the world. Only those who know the intimate realities of research work can realize how much the world will lose if the now open door of the medical laboratories becomes jealously closed.

PROGRESS THROUGH KNOWLEDGE FOLLOWED FOR ITS OWN SAKE

The servants of medicine have the challenge always before them of a direct objective, near for some, more remote for others, but always in sight—that of lessening pain, and of bringing to their full development the mind, body and estate of mankind. Little wonder if in their eagerness to press on to their goal they feel impatience of any but the paths that seem so direct and obvious. But here the lessons of science are the same as the lessons of high morality. The work of mercy can be effective only so far as knowledge guides it; and new knowledge comes, as long experience has taught, to him most fully who seeks it for its own sake first. Charity and loving kindness to our neighbor is a high commandment indeed but it was called the second commandment. The first and great commandment is to give with the whole heart and the whole mind our worship to truth for its own sake and for the sake of the beauty that it reveals.

In the air of a true university, these fundamental lessons are learned as a part of everyday reality. I venture to say that these ideals of the university spirit have been your inspiration here from the beginning, and that your great school of medicine, fostered for more than a century and a half as an integral part of the university and as one of her most favored children, has grown to her present stature under their guiding influence. Those of us who are honored by being with you here today have rejoiced in your recent accessions of strength and opportunity. We wish you Godspeed from our hearts in the further progress of your university medical school. Its work in the past and in the present may surely encourage you in a high confidence that it will now, in renewed and growing strength, go forward to service beyond any present calculation in the advancement of knowledge, the conquest of pain, and the elevation of mankind.

15 Holland Street, Kensington, W. 8.

THE PHYSICAL REASONABLENESS OF LIFE [*]

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When I had the honor to propose my friend Professor Bronk as a member of the British Physiological Society I cited, as one of his qualifications, that he had written papers on astrophysics. This—as you may imagine—was not meant entirely seriously; nor will you charge me with supposing that a knowledge of astrophysics is, in itself, of use in physiology. There may even have been a gentle note of provocation in what I did; I may have hoped to draw an echo of protest from Prof. J. S. Haldane, who contrives—not quite seriously—to object to the use of what he is pleased to call mathematics in physiology. The most serious things, however, are often said and done with a smile. At the back of Haldane's mind, disguised in his laughing insults to quadratic equations and his jesting horror of electrical apparatus, is perhaps the strongest motive of his intellectual, one might almost say of his spiritual, life, the faith that in the living organism regarded as a whole there is something which is not simply present-day physics, the insistence that the conception of an organism is as fundamental to biology as those of electricity, space and time are to physics. I did not succeed in provoking him when I proposed Professor Bronk for membership; which is perhaps as well, for, in spite of our mutual recriminations on the subject of what he calls "mathematics," I am proud to reckon myself, in philosophical matters at least (and when I can understand him) to some degree as his disciple; indeed, if he is not abusing me for being a mechanist he is blaming me for being a vitalist—which apparently is as bad though the average is right.

I am not intending to tell you today—you have heard it often enough and it is not true—that the phenomena of life could be explained, at least by some one clever enough, in terms of the physics and chemistry of the present time. Whether the future physics and the future chemistry will suffice I will not guess; when the events of physics have become indeterminate, and the physicists, poets and mystics; when chemistry has become physics, and the chemists have become physiologists; then, indeed, the situation may be different. Until that day I shall continue—with Haldane—to insist that in the organism regarded as a whole we have a phenomenon of a different kind, one whose unity and fundamental nature are as essential as any of the concepts of physics. Why I wanted to provoke Haldane in respect to Bronk's wild oats is that I hold, and he in theory does not, though in practice he does, that the most fundamental way of investigating that organism is the way provided by physics; and that to employ physics properly biology needs, not people who have read it up the day before in an encyclopedia, not people even who might get a good second class degree in it if they tried, but the proper article. It is because I know that Bronk is the proper article and feel that his new department, the Johnson Foundation for Medical Physics, represents a great and fundamental step forward in biology and medicine, not only in Philadelphia but in America, that I have had the impudence to come here today to address you.

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[*] Read at a convocation held in celebration of recent medical progress at the University of *Pennsylvania, Philadelphia*, Oct. 10, 1930.

SCOPE OF PHYSICAL METHODS

Physical methods alone—and those of the best—are adequate to investigate the physical phenomena of life. Some people will say that in describing these phenomena as physical we are missing their essential biologic import, we are drawing a red herring across the trail. I do not believe we are. Convinced as I am that no physicist, however bold or learned, with the aid of all his wave mechanics, his quantum theory and his relativity, can hope to describe the whole of our behavior here this afternoon as due to the properties of proteins and electrons, certain as I feel that Laplace was wrong in believing that, given the motion of all the particles of matter at any moment, a sufficient intelligence could predict all future history, nevertheless, I am quite sure that when a living organism shows phenomena of any kind which we can appreciate by our senses, those phenomena and their nature can best be investigated by physical means. And I am equally sure that such investigation will be very profitable for the future of biology, and in the end—through medicine—for the welfare of mankind.

There is really no contradiction here. If you take any of the machines conceived and made by man you will find that their detailed characteristics are essentially of a physical and chemical nature; the properties of steel and brass, of oil and water, of electricity and magnetism, of lead and acid, of copper wires and insulating tape, may all be investigated by physical and chemical means—he would be a poor engineer who held otherwise. Yet a man-made machine is essentially a human phenomenon: it was designed for a purpose, it fits man's biologic needs, it has adaptability or flexibility as we say, within certain limits it continues to function in spite of changes in its environment. In a minor way a medicine is an organism, part of the greater organism of human society.

There is nothing biologic about the properties of copper, steel, carbon, rubber and shellac; yet to deny the rôle which an electric motor or a dynamo may play in human affairs would be idle and absurd. There is clearly an essential difference between a complex electrical installation, regarded as a whole, and the materials of which it was built up. Design and purpose are apparent in the former, adaptability and coordinated response, properties inherent in the human minds which designed and built it, but not at all in the properties of matter as such. The engineer, however, who attempted to study, or to design, machinery without a very complete knowledge of those properties, would land himself in insoluble perplexities; his machines would never work.

The driver of an automobile may be, he sometimes is, acquainted with the purpose of the several parts of his machine. To construct, or to repair, however, requires very much more knowledge than merely to drive; and the physical properties of the materials are, though it may not always be apparent to the layman, the basis of the whole design. Had aluminum had all the properties of steel, except its density, copper ten times its actual conductivity, had air consisted of 79 per cent oxygen and 21 per cent nitrogen instead of vice versa, had the intensity of gravitation been ten times greater or less, what extreme differences there would have been in engineering construction and design! So it is in biology: the properties of matter are its foundation; the detailed phenomena which appear in the living organism, of which we are aware through our senses, are physical or chemical in nature and must have a physical or chemical basis. It is inconceivable, indeed, that if phenomena involving heat, light, sound or electricity are witnessed in a living cell these should not be found to depend on other factors of a physical kind. Unless we believe in magic, and as scientists presumably we do not, we must hold it as inconceivable that any physical effect whatever should not be linked with some preceding physical cause.

To that extent the physiologist must be a complete and absolute mechanist—he must admit no judgment except that of experiment, no immediate cause of any individual phenomenon except the material physical one preceding it. His problems are very difficult and complex, they may require more knowledge, more intelligence, more skill for their elucidation than at present he possesses. No matter, it is futile, not to say impudent, to assume that because his limited powers, now and here, cannot solve them, therefore they are insoluble and some form of magic or miracle must be invoked.

The title of this address was chosen with care. Convinced as I am that the whole intelligence of man, and not that particular corner of it which is concerned with exact and quantitative reasoning, is adequate to grasp the full significance of life in the biologic sense, I would much rather claim too little than too much. I do want, however, to insist that life is physically reasonable, in the sense that its detailed characteristics can best be studied by exact and quantitative experimental methods. For some years I was responsible for teaching physiology to medical students; and I frequently asked myself—or they asked me—what was the good of teaching them this and that? Why should they learn about frog's muscles and nerves, about the electrical change of the heart, about membrane potentials, and hydrogen ion concentrations? Why should they be forced to study mechanics and to pass an examination in physics? Most of them would have no use for these things in after life; a little more personal skill in handling patients might serve them and the patients better. One answer, I think, is this: they must be made to feel what I have called the physical reasonableness of life. A belief in magic is still widespread; who among us is quite free from it? And we do not want to be quite free. The common folk are all too ready to trust in the magical power of medicine or of treatment and to think of doctors as wizards or magicians. It is fatally easy to believe what it is convenient to believe, and the education of a medical man should lead him to the instinctive and confident view that magic has no place in medicine, that it is professionally dishonorable to believe, or to suggest, explanations of phenomena or methods of treatment which are physically unreasonable. To give physics, and physical methods competently and critically used, a high place in your medical curriculum is to set men's faces definitely in the right direction, and your influence against the spread of magic and fraud.

THE JOHNSON FOUNDATION FOR MEDICAL PHYSICS

We are celebrating among other things today the noble gift of Mr. Eldridge R. Johnson, from which has arisen, under the far-sighted inspiration of his friend Dr. Alfred Stengel, the Johnson Foundation for Medical Physics. It is fitting that in the oldest medical school of this continent, in the city of Franklin, one of your greatest experimental philosophers, there should be this opportunity given to see how far modern experimental philosophy can aid in the understanding of life and disease in the alleviation of human suffering. To show how this may happen I cannot do better than refer to the booklet which has been prepared to celebrate this occasion.

> As research thus yields a more quantitative understanding of vital processes in terms of these physical principles, it becomes increasingly possible to approach clinical problems from this point of view. It is one of the aims of the Foundation, therefore, to interpret pathological and normal biological systems in terms of physics; to study the effect of physical agencies such as light, heat, sound and electricity as normal factors and therapeutic measures; and to make the results of such investigations readily available for clinical use. As a consequence of such developments modern clinical practice and medical research are constantly meeting difficulties which can only be solved by men trained in the physical sciences. A second function of the Foundation therefore is to make available to the medical school an organization capable of solving specific problems that face the clinician either in the ward or in his research. This cooperative research makes possible a more adequate physical approach to many medical investigations and keeps the staff of the Foundation in close touch with practical problems of the clinic. A related type of activity is the development of new methods and apparatus for medical treatment, diagnosis and research. . . . A modern well equipped shop and instrument-design room are located in the Foundation laboratory and are under the direction of a graduate mechanical engineer who is in charge of design and construction of apparatus. These facilities are available to all departments of the Medical School. The increasing use of physical agents in therapeutics, the increased possibility of approaching medical and biological problems from the physical viewpoint and the usefulness of biophysical methods in the solution of medical research problems indicate the need for better training in this field. Members of the staff are available for lectures on established courses on such phases as are of a physical nature. Graduate work is offered leading to the degree of Doctor of Philosophy in cooperation with other departments of the Medical School and the Department of Physics. And one research fellowship is offered each year to a medical graduate of at least one year's standing, which offers full time for research on a problem of clinical interest that is of a physical nature. Through these instructional activities the Foundation hopes to increase the supply of workers in this field and to improve the capacity of the medical profession to utilize physical methods and principles. Thus established to carry out these several purposes, the Johnson Foundation promises to render a unique service to medicine and to lead the way in a rapidly developing field.

I could not summarize better than by these extracts the motives of those who are attempting all over the world, and particularly here, to apply the methods and ideas of physical science to biology and medicine; and I am completely confident that so long as Bronk is skipper of the ship, the faith of those who planned and endowed this new adventure will be rewarded by rich and wholesome cargoes.

COMRADESHIP IN SCIENCE

For those who sail and adventure—as Bronk and his crew will do—in the seas which lie between one region of science and another, life is not dull; strange, unexpected and valuable things turn up as the result of contact between different kinds of culture and different types of mind. What does not physics owe to mathematics, chemistry to physics, physiology to both of them and to zoology, anatomy and medicine? One of the happiest comradeships in science was that of Bayliss and Starling, the one essentially a physicist in outlook, the other a biologist. It is said by those who ought to know that few Englishmen of the present day have served clinical medicine so well as Sir Thomas Lewis the physiologist; certain it is that English physiology owes a great debt to the discoveries of Sir Thomas Lewis the clinician. Lewis's discoveries in cardiology were made possible by Einthoven the physicist; Einthoven the physiologist with that charming modesty which made us love him so much retorted that without Lewis's discoveries nobody would have thought of giving him the Nobel Prize for Medicine—which maybe was true. Hopkins played a leading part in the discovery of vitamins; I wonder how far he would have gone on that path had he not been chemist enough to discover tryptophan. The beautiful work of Erlanger and Gasser and their colleagues on action potential waves in nerve was possible largely because Gasser, alleged to be a pharmacologist, is by instinct and taste an electrical engineer; the no less beautiful work of Adrian on the physical basis of sensation was made possible, as Adrian himself confesses, by the invention of the amplifying valve. Kieth Lucas, one of the greatest of English physiologists, was a first-rate mechanic and instrument designer; his father's connection with the Telegraph Construction and Maintenance Company, and his voyages in the company's cable-laying ships, had early given his mind an instructive bias to electrical methods. Helmholtz's studies in the physiology of hearing and vision were possible only because of his mathematical and physical knowledge. One of the happiest men in the world is Sir William B. Hardy, zoologist, colloid chemist, physiologist, physicist, engineer, now director of a laboratory in Cambridge for studying the problems of refrigeration, all his life a sailor and adventurer in unknown seas. I need not weary you by a longer recitation of names; you know many such men in your midst; and they are, like Hardy, happy men, who could not dream of giving up their adventures on the high seas between the different sciences for any stay-at-home job.

The increasing speed of scientific development, and the increasing specialization which results, make it the more necessary that a certain number of research workers should be trained and interested in two sciences at least and working in the field between them; otherwise great and important possibilities may be missed. It is impossible for a single man to cover the whole field of science; it is becoming impossible to be acquainted with the whole of any single branch of it. If there is to be coordination and not confusion there must be continual overlap; the zoologist can make contact with the chemist if both know something of physiology; the clinician with the electrical engineer if both know something of physics; the bacteriologist with the biochemist if both know something of zoology. It is apparently too much to expect that professional physicists or mathematicians—except in rare cases—should know anything of biology; unfortunately it is possible to study physics and mathematics at school and university, to the exclusion of almost everything else, certainly of that major half of natural knowledge which is contained in biologic science. This may produce excellent physicists and mathematicians, but it leads to a singularly one-sided, one might almost say an uneducated, view of the real world; and, judging from the number of distinguished physicists who are prepared to dally with spooks and spiritualism, to a very unsophisticated and uncritical outlook on anything but their special subject. Be that, however, as it may, the fact remains that in general we biologists, and you medical men, can expect very little direct help from the majority of physicists and mathematicians; it is necessary that some of us should study these matters for ourselves.

This is no small task—the discipline necessary for an adequate and critical use of physical methods and ideas cannot properly be given in the crowded years of a medical course. It is necessary that a certain number of properly trained physicists should be attracted to biology and induced to turn their attention to its problems. We want men with disciplined and critical but also with adventurous minds to guide us in the seas which separate biology from physics; and rich are the prizes they will help to bring home to port.

VARIOUS APPLICATIONS OF PHYSICS

Let us return to the title, the "physical reasonableness of life." Consider the biologic effects of radium. Most of us have heard of the great success of radium, properly used, in treating certain forms of cancer, particularly cancer of the breast; we all know, however, that the high hopes with which its general use in cancer has sometimes been proclaimed have not been entirely fulfilled. There is no doubt at all of the effect of radium on living cells; but, strange to say, the mechanism of the effect is still uncertain. There is presumably nothing magical about it. X-rays act in a similar manner; both may work by releasing high-speed electrons in the interior of the cell. Why, however, and in what way should a normal cell be affected by a high-speed electron? It is not impious to ask, any more than to inquire why the human body needs water after exercise on a hot day. There is presumably an answer. How many such electrons are required per cell; within what range—if any—must their velocity lie; what part of the cell must the projectile hit; which cells are therefore the more susceptible; why are certain cancer cells apparently more readily damaged and destroyed by the bombardment than are normal cells, or may not the effects be due to stimulating the good cells rather than to injuring the bad ones? Such questions are obvious enough—and if we believe in the physical reasonableness of life they must have answers which presumably will not be too difficult for human beings to understand.

Consider the common hen's egg. The yolk represents a single enormous living cell, surrounded by a very delicate extensible membrane; it is suspended in the white; any physical chemist, and most biologists, would have guessed that yolk and white would have the same osmotic pressure. Not a bit of it! The osmotic pressure of the yolk is one-third greater than that of the white and remains so for many days, even in the complete absence of oxygen, so long indeed as the egg is alive. The phenomenon is obvious enough; there is no magic about it: it is surely not impious to inquire about it; no purely biologic reasoning can throw light on the matter, which may prove to be very important; if we believe that life is physically reasonable we must use physical tools for its elucidation.

The little red fiddler crab, *Portunus depurator,* always lives in deep sea water. He has no mechanism to withstand a dilution of his environment. Put into diluted sea water he rapidly changes the concentration of his body fluids, presumably by transfer through his gills, until in four or five hours he has come into equilibrium with his new surroundings. In 50 per cent sea water he dies; in 75 per cent he may live, apparently indefinitely. The shore crab, *Carcenus maenae,* on the other hand, must be ready to meet diluted sea water in estuaries, or concentrated sea water in pools. He may tolerate 25 per cent sea water for days, slowly diluting his body fluids until they reach an apparently steady value isotonic with about 60 per cent sea water. His gills presumably are permeable to the salts of sea water but are able also to resist their passage; they have very different properties from those of the fiddler crab; they are,—though initially permeable—able finally to tolerate a considerable difference of concentration on their two sides, an admirable property, essential to the crab's existence, very important presumably in some of our own cells, e. g., in the kidneys and alimentary canal, but depending on factors quite unknown. To attribute the phenomenon to some vital action of the cells is merely to put it in a certain category, not to explain it. Is it analogous to the case of the hen's egg, has it anything to do with edema or secretion? If so, the further investigation of such things by physical and chemical means may provide us with a harvest of useful information.

Few subjects are more important than physical pain. Its nature has been debated since man began to ask questions. Philosophies and religions have taken cognizance of it; few men can face it with equanimity; a disregard of it has been reckoned one of the greatest virtues. Who would have thought that the study of electrical changes in living tissues on the one hand, and of the conduction of electricity through gases on the other, would have led to the beginning of understanding at least of its physical nature and accompaniments? Yet such is indeed the case. With the aid of amplifying valves, and the beautiful physiologic technic which Adrian has invented, painful impulses in single nerve fibers can be seen on a screen, or heard in a loud speaker, intensities of pain can be measured, the difference between pain and mere sensation made clear. The philosopher may say, But this is not pain, only an accompaniment of it; maybe; but at least if the impulses are stopped the pain will end. If we can understand the nature of these impulses and the manner in which they originate, if the quantitative nature of the physical basis of all sensation can be properly described, then indeed a new field of research will be opened in neurology and a new era in medicine.

It is now beyond dispute that the principle of the conservation of energy applies just as rigidly to living cells as to the rest of the world. By Prof. Graham Lusk and his associates in New York, accompanying and following a long succession of workers in all parts of the world, this principle has been made the foundation of the science of nutrition. Vitamins indeed and salts and other things there must be, but a certain minimum of calories is essential. The animal machine, just like the steam engine, must be fed with combustible fuel to supply it with the energy it needs. In this respect at least nobody believes in magic any longer; the living cell can no more produce energy than it can produce matter out of nothing. This particular application of physics is obvious and complete; and without it a large part of the sciences of life would be unintelligible. Let us remember it when we consider the importance of biophysics.

THE GREATER ROMANCE

In a public speech it is wise to attempt to move the hearts, as well as to interest the minds, of one's audience. It would be very difficult, however, indeed well nigh impossible, to move men's hearts much by reference to the achievements and the future usefulness of a branch of science. I have urged that we must not believe in magic—that a training in physics and biology, an acquaintance with the facts of medicine and neurology, will prevent an unreasoning belief in spooks and spiritualism and miracles; a most depressing conclusion, for it is romance and magic and miracles which really move men's hearts, however hard they apparently be!

> "Romance is dead," as Kipling said, "and all unseen
> Romance brought up the 9:15."

The greater romance remains. Did we believe in the stories of spiritualism, in the alleged antics of the spirits of those who have passed on, we should be forced to conclude that the next world is filled with gibbering idiots. Did we hold with many common superstitions and accept many common forms of magic, we should have to conclude that the Ruler of the World ought really to be shut up in a madhouse. The world is not less beautiful if bits of it become intelligible; a tract of country is not less romantic if we carry a map; the sky is not less blue if we know that the blueness is due to the scattering of light by particles or molecules far up; there is no less pleasure in achievement if we use good tools than if we use bad ones. In scientific research we work and work, sometimes for months and years, in digging a tunnel with no apparent results; then suddenly comes the supreme joy of life—daylight begins to glimmer at the end, and in a few minutes we see that nature, after all, has not played us false. To one who works honestly and accurately, these moments are sure to come. And in using physical methods the joy is so much the greater because the achievement is more sure. Not only do we find the promised land, but often its details agree with surprising accuracy with the quantitative forecasts that have been made about it.

It is no use, therefore, to tell a scientist that romance is dead, or a physiologist that physiologic problems are insoluble; the emotions he has experienced in finding new worlds will effectively prevent him from believing you. No joy can be greater than to find convincing evidence for one's faith that nature is ultimately reasonable, no emotion more satisfying than to achieve exact and quantitative verification after months of trial and experiment. Do not think, therefore, you who live amid the romance of helping your suffering fellow-men, that the new laboratories here are peopled with patient drudges, moved perhaps by intelligence but never by emotion. There may be as much real poetry, as much real magic, as much real romance, within these walls as a human life can hold.

It is a necessity of religions that they should have creeds but a failing of some of them that they make these too long and incredible. In science also, which is a form of religion, we need creeds, but let us take warning and keep them short. May I suggest one to Professor Bronk for the Johnson Foundation?

"I believe in young and intelligent minds; I believe in the value of careful experiment and observation, and in the very special virtue of accurate quantitative measurements; I believe in the utility of theories provided they be not regarded as facts; I admit the necessity of criticism and disbelief; I hope and pray for the damnation of those who are not strictly honest; and I am convinced of the complete reasonableness of natural phenomena."

Believing in these things as he and his colleagues do, rejoicing in the supreme opportunity supplied by the generosity and wisdom of those who gave and planned and executed, I foresee for them a future of work and adventure which cannot fail to bring rich fruit, to themselves and their colleagues in this, the oldest of American medical schools, and so to the rest of the world.

I must not let this afternoon go by without a word of thanks. You have treated me with much honor in asking me to address you on this great occasion. I wish I could have said something of more dignity and value, something more worthy of the years of work and forethought which have gone to make the occasion possible. It is strange that you should have thought to invite Sir Walter Fletcher and myself to address you on the same day. It is almost precisely a quarter of a century ago—within a week—that I became, by fortunate and romantic chance, his pupil at Trinity College, Cambridge. It is almost precisely a fifth of a century ago that, as the result of his advice to study physiology, I became a Fellow in our College. I know he regards me with a certain parental affection, as I him with filial pride: it has moved us deeply that after this quarter of a century we should be coupled, as you have coupled us today, in the honors you have done us. It is strange, too, that you should have asked me to speak on the same occasion as Dr. Welch. I have been honored by many kindnesses from Dr. Welch, and one of my treasured possessions is a photograph of himself dressed as a brigadier general in the American army. I understand that in spite of all his achievements, in spite of all the honors which have befallen him, in spite of his supreme rank in American medicine, he is sufficient of a schoolboy still to get more joy from the uniform of a brigadier general than from all the rest. If friends in England can make any one an Englishman, then Dr. Welch is one, so the strangest thing of all is that three Englishmen have been invited to address you today. Whatever your motive, I am inclined to think that it has something to do with a special item in the Scientists' Creed which I omitted before with the intention of including now: "I believe that the pursuit of knowledge, for the welfare of the race, is one of the greatest agents of good will between men in every land." Our theories may be wrong—which does not matter much—our observations may not prove accurate enough—which is bad—our experiments partial and misleading—which is awful; but the fact that we have marched side by side in an honest endeavor to conquer ignorance, that we have sailed the unknown seas together in search of adventure and truth, and that we have learned to understand and love one another not only as fellow workers but as fellow beings—these things cannot fail to draw us together and so to minister to the welfare and comradeship of the different varieties of men. Such at least is my firm faith. I see in science and medicine more hope of cooperation between the nations than in any other field of human endeavor; and some such motive, I imagine, inspired you to invite two Englishmen, and an honorary Englishman, to take part in this great and intimate occasion.

16 Bishopswood Road, Highgate N. 6.

The Bond Between Doctor and Patient.—Any reorganization of the medical profession that threatens the personal bond between doctor and patient is to be viewed with suspicion, even if the object appears at first sight to be more thorough and careful practice. With the exception of the relationship that one may have with a member of one's family, or with the priest, there is no human bond that is closer than that between physician and patient (or patient's family), and attempts to substitute the methods of machine or organization, be they ever so efficient, are bound to fail.—Peabody, F. W.: Doctor and Patient, New York, Macmillan Company, 1930.

THE DIAGNOSIS OF TUMORS INVOLVING THE SPINAL CORD *

HENRY W. WOLTMAN, M.D.
ROCHESTER, MINN.

I propose to limit my consideration of tumors involving the spinal cord to diagnosis, which is the phase of particular interest to medical men and which has, as its natural sequence, proper treatment. The patient's story is the most important step in diagnosis.

DIAGNOSIS

Pain.—The earliest and commonest complaint is pain. In more than 300 proved cases of tumor of the spinal cord at the Mayo Clinic, pain was present in approximately 80 per cent. The average duration of the symptom was well over two years. Frazier[1] noted the duration of the disease to be twenty-eight and four-tenths months. The pain may be in the spine at the site of the tumor; it may be referred to the lower extremities even when the tumor lies high in the canal, but usually it is referred along the distribution of a posterior root, when it is known as a root pain. It is the peripheral radiation of root pain and its various qualities, such as aching, squeezing or piercing, that so frequently suggests disease of the pericardium and pleura; of the biliary, urinary and gastro-intestinal tracts; of the peripheral nerves, and of muscles and bones.

Fortunately, root pains have certain characteristics. They are segmentally distributed; that is, lengthwise in the arms and legs and circularly in the trunk. Then, since tumors grow, the pain becomes more and more intense and adjacent roots become involved; unilateral sciatica becomes bilateral sciatica, and unilateral trunk pain has added to it a complementary pain on the opposite side, completing the so-called girdle. Since there are usually no diseased organs at the site of the pain, there is, as a rule, no local tenderness. Coughing, sneezing, compression of the jugular veins, or, in short, anything which suddenly increases the pressure of the spinal fluid aggravates the pain. Root pains have a habit of awakening the patient from sleep at 3 or 4 o'clock in the morning. He discovers that relief may be obtained by walking, or by sleeping in a chair. In both of these positions the spine becomes relatively shorter. A helpful test consists in flexing the head sharply on the thorax; this simple maneuver often elicits or accentuates the pain. The explanation is probably to be sought in the resulting traction on the cord and dura, and in the increased congestion within the head which displaces the cerebral fluid into the spinal canal. A blue pencil, which Richard Bright referred to as "the most useful instrument of the physician," will be found helpful. It is important to know the precise site of the pain, which may be marked on the patient. The dates of its appearance and its radiation should be recorded.

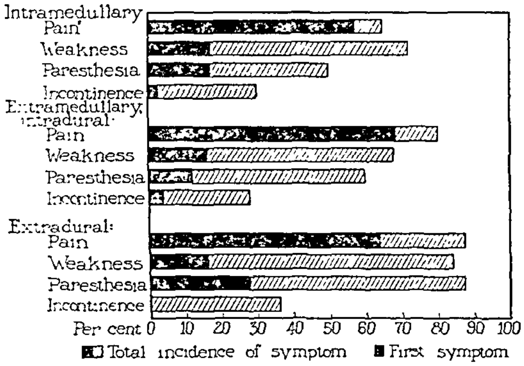

Fig. 1.—Frequency and order of appearance of four cardinal symptoms of intramedullary, extramedullary, intradural and extradural tumors involving the spinal cord.

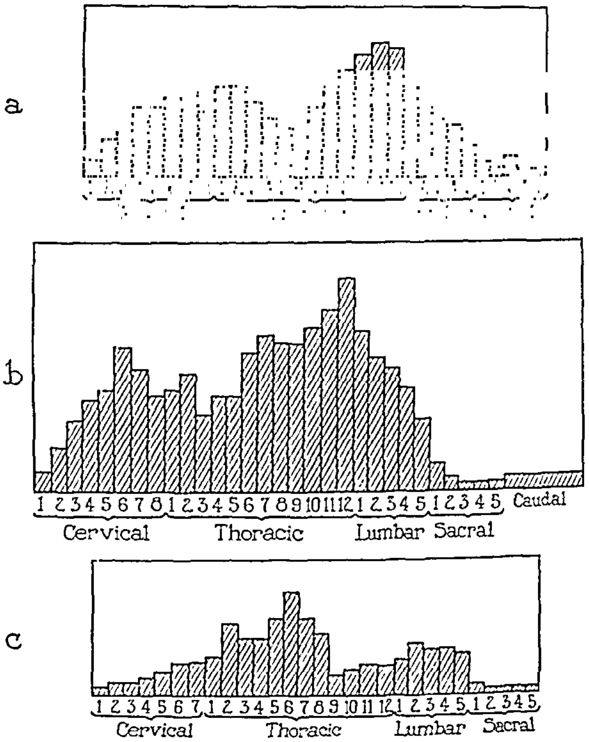

Fig. 2.—Incidence at various segmental levels of 312 tumors. Diagrams are based on Craig's figures: *a*, eighty-nine intramedullary tumors; *b*, 156 extramedullary intradural tumors; *c*, sixty-seven extradural tumors.

Disturbances of Motility.—By and by the patient may become aware of clumsiness in running, or of outright muscular weakness. As a rule, the weakness is slowly progressive. The weakness is usually due to injury of the corticospinal pathway, pyramidal tract, or upper motor neuron. The homolateral muscles below the level of the tumor, although they retain their bulk, become weak and spastic; the tendon reflexes are increased, and scratching the sole of the foot results in extension of the great toe. Inspection of the tips of the patient's shoes may show a decided difference in wearing.

Sometimes the paralysis is due to direct injury of the contiguous anterior horn cells or ventral roots, which together constitute the lower motor neuron. If this occurs, the segmentally related muscles fibrillate and become atrophied, weak and toneless, and their reflexes become correspondingly feeble. By consulting suitable charts, the level of the nerve cells that innervate muscles so paralyzed may be determined. This type of paralysis is the best of localizing signs.

Some patients collapse suddenly, arise, and wonder why they fell; this often happens in case of dumb-bell-shaped tumors which lie partly within and partly without the spinal canal, and may be due to transitory compression of the cord. Other patients who become suddenly weak may have suffered from hemorrhage or softening of the cord incidental to the tumor.

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* From the Section on Clinical Neurology, the Mayo Clinic.

* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

[1] Frazier, C. H.: Surgery of the Spine and Spinal Cord, New York, D. Appleton & Co., 1918, pp. 498-608.

Disturbances of Sensibility.—Subjective sensory disturbances appear sooner or later. The patient may complain that his underwear is unbearably irritating; the feet may be "dizzy"; the limbs may move to unanticipated positions; there may be burning, tingling, or a wooden sensation. These disturbances result from interference with the posterior roots or conducting tracts in the cord, as will become apparent in the accompanying reports of cases.

Disturbances of Sphincteric Control.—Disturbances in the sphincteric and sexual spheres may add to the discomfort of the patient. That these complaints do not vary greatly with the situation of the tumor is shown in figure 1.

Following spinal puncture, aggravation of all symptoms is common; a neurologic examination may then enable one to establish a level of disturbance with ease when it was impossible before.

ILLUSTRATIVE CASES

Although the history of the case leads one to suspect tumor, the diagnosis rests largely on the objective examination. A working knowledge of the anatomy and physiology involved must be the guide. Three cases, in which tumors were found at different segmental (fig. 2) and transverse (fig. 3) situations,[2] will help to illustrate some of these points.

CASE 1.—A man, aged 32, who was left-handed, complained of paralysis of the left arm. Four months previously he had noted an aching pain in the left occipital region, which was present on awakening and gradually wore away after he had eaten breakfast. He had become constipated and had found that he could not void urine until his bladder had become well filled. Three months before his admission to the clinic he had noticed that the left arm felt heavy and that he had to look carefully at an object when he attempted to pick it up with his left hand; otherwise it would escape his fingers. He had become aware of a slipping sound made by his left foot when he walked. One evening, much to his surprise, he had stepped with the left foot into a scalding hot bath, which, tested with the right hand, had seemed to be neither hot nor cold. Subsequently, the right half of the body had tingled constantly. On occasions he had vomited unexpectedly. The story was one of progressive disability, beginning with pain in the left occipital region, followed by vague sphincteric disorders, impairment of joint sensibility in the left hand, left hemiparesis, right hemithermanesthesia, and symptoms which suggested increasing intracranial pressure.

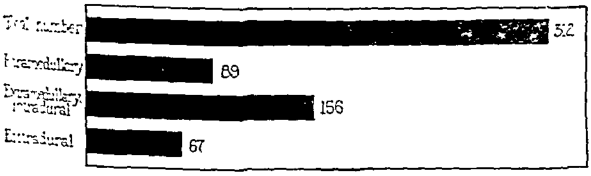

Fig. 3.—Transverse positions of tumors, based on Craig's analysis.

Over the right half of the body below the distribution of the fourth cervical segment there was loss of appreciation of pain and temperature, but appreciation of touch was normal throughout. Since painful and thermal stimuli cross to the opposite side of the cord, their loss on the right side suggested involvement of the tracts which conduct these forms of sensation, that is, the left lateral spinothalamic tract. Since tactile stimuli ascend partly in the homolateral posterior column and partly in the opposite anterior spinothalamic tract, their preservation indicated that at least one of these pathways was intact. The left arm and leg, although they were normal in bulk, were paralyzed and spastic, and displayed increased tendon reflexes and extension of the great toe on plantar stimulation. This indicated injury to the left pyramidal tract. The faulty perception of movements of the joints and of vibration in the left upper extremity indicated that the lesions involved the lateral aspect of the left (fac. cuneatus) posterior column. In other words, Brown-Séquard's syndrome, which is indicative of a lesion affecting one side of the cord, was well developed. The drooping eyelid and small pupil on the left, Horner's syndrome, were due to paralysis of the sympathetic fibers and indicated a lesion not lower than the first or second thoracic segments, since no sympathetic fibers leave the cord above this level. The left sternomastoid, trapezius and nuchal muscles were weak, atrophied and fibrillating, which indicated involvement of lower motor neurons. Since these muscles are all innervated by cells of the first four cervical segments on the same side, a sharp localization became possible. Over the left occipital region in the territory of the posterior root fibers of the second cervical nerve, appreciation not only of pain and temperature but also of touch was lost. These phenomena localized the lesion sharply to the left side, in the region of the first and second cervical segments. The projectile vomiting was probably caused by encroachment of the lesion on the foramen magnum. Since the history indicated progressive involvement, tumor was the most likely cause.

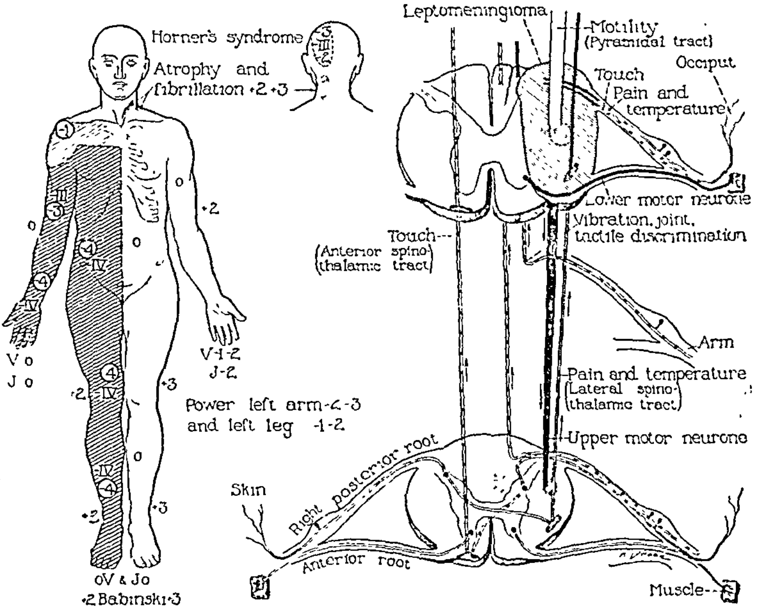

Fig. 4.—Illustrating data noted in case 1. In this figure and in figures 5 and 6 the intensity of changes is charted on a basis 0 to 4, 0 indicating normal, 4 complete absence. Arabic figures represent appreciation of touch; encircled Arabic figures, pain; Roman figures, temperature. Injured pathways in this figure and in figures 5 and 6 are in solid black. Extramedullary intradural tumor on the left side at first and second cervical segments.

Subtotal removal of a malignant meningioma was followed by marked temporary improvement, but the growth recurred later.

Tumors in the upper end of the spinal canal may present certain peculiar features. The exposed situation of the decussating pyramidal tracts on the anterior aspect of the cord, in the presence of a tumor, may result in a quadriplegia unaccompanied by any sensory disturbance. The sensory disturbances associated with high cervical tumors may be limited to the lower extremities or may fluctuate from time to time and from place to place, probably because the canal is relatively large. Involvement of the descending root of the fifth nerve may result in pain referred to the face and in anesthesia for pain and temperature over certain districts of the face, particularly over the forehead. The proximity of the tumor to the foramen magnum may bring about signs of tumor of the brain, such as projectile vomiting and choked disks.

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[2] Craig, W. M.: Unpublished data.

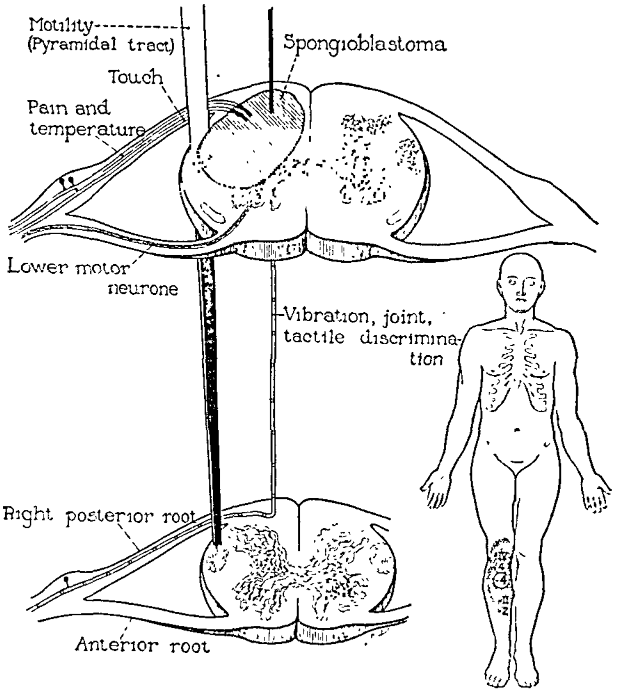

Fig. 5.—Intramedullary tumor, left side, at second to fourth lumbar segments.

Case 2.—A man, aged 58, came to the clinic because of pain in the right leg. Six years before, a "pinching" pain had appeared under the right knee cap when he sneezed. The pain had grown in intensity, had gradually extended to the anteromedian aspect of the right thigh, and had been especially severe at night. His wife had tried to relieve him by "ironing" the leg. The iron had been too hot for the thigh but he had "stood it well" on the knee. The following morning they had discovered large blisters over the knee. Numbness had developed in the right great toe and had gradually crept up the anterior aspect of the leg. For four years this leg had grown stiff and awkward, and he had stumbled frequently. Two years previously he had soiled himself during an attack of diarrhea.

Examination disclosed slight weakness of the right leg (fig. 5), particularly of the iliopsoas, hamstring and extensor muscles of the toes, and occasional fibrillary tremors in most of the visible muscles of this limb. The gait was slightly spastic and ataxic on the right side. The right patellar reflex was absent, a good localizing sign, but the right achilles tendon reflex was more active than the left, and the right great toe turned up on plantar stimulation. Evidently the lesion involved the second to the fourth lumbar segments, which subserve the arc of patellar reflex, and the right pyramidal tract. There was impairment of all forms of cutaneous sensibility mediated through the posterior roots of the right third and fourth lumbar nerves, and of vibration, joint and tactile discrimination, below this level, mediated through the homolateral posterior column; for example, when the patient was asked to place a finger on a point previously touched by the examiner, he missed it by 16 cm.; when asked to count the number of rapidly applied stimuli, he did so inaccurately; he could not recognize figures drawn on the skin; he could not recognize two points of a compass, applied simultaneously to an area, unless they were separated more than 6 cm. However, a separation of 2.2 cm. sufficed over the corresponding area on the left leg.

A diagnosis was made of tumor of the cord, probably extramedullary, at the level of the third and fourth lumbar segments, which lie opposite the body of the eleventh thoracic vertebra on the right side. On exploration a poorly defined intramedullary spongioblastoma was found, evidently situated more on the right side of the cord than on the left.

The case illustrates, among other things, the difficulty of distinguishing between intramedullary and extramedullary growths.

Case 3.—A man, aged 29, came to the clinic because of "sciatic neuritis." Three years before, on a morning following a dance, he had been unable to get out of bed because of general malaise, fever, and intense pain in the lumbosacral region, which radiated down the posterior aspect of the left thigh. For nine days he had remained helpless in his shack and had "almost frozen to death," for the temperature had dropped to — 36 F. After three weeks he had returned to work but the pain had persisted. Work had aggravated the pain but he could "tell when the sun set and rose" because of the nocturnal incidence of the pain. Two months before examination, he had noticed a crawling sensation over the posterior aspect of the left thigh.

Many features of the story suggested sciatic neuritis, but other possibilities were indicated. There was a marked list of the spine toward the right. Flexion of the extended leg on the thigh (Lasègue's test) increased the pain, as did sharp flexion of the head on the thorax. The left achilles tendon reflex was absent. Appreciation of pain, temperature and touch were impaired, as indicated in figure 6. The spinous processes of the second and third lumbar vertebrae were slightly tender, but the sciatic nerve was not tender.

Influenced by the course of the illness and the site of the anesthesia, a diagnosis was made of tumor of the cauda equina with involvement of the left second, third and fourth sacral roots. The exact level was difficult to determine, since the tumor might be situated anywhere between the body of the first lumbar vertebra, at which level these roots spring from the cord, and the sacral foramina, where these roots leave the spinal canal.

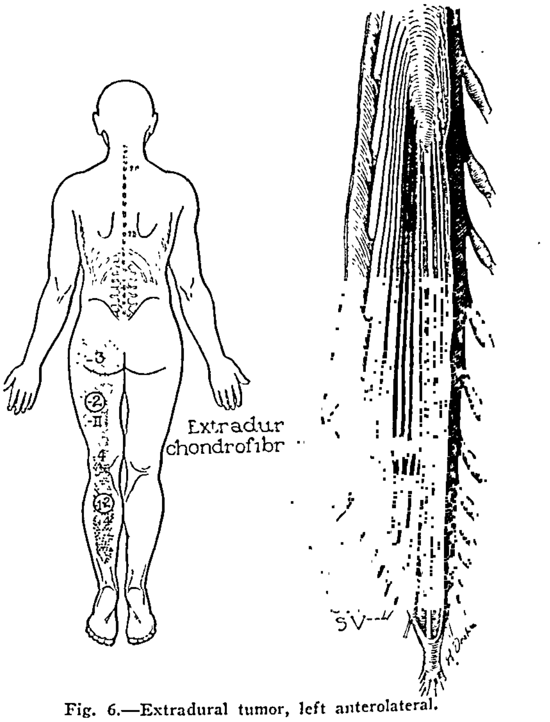

Fig. 6.—Extradural tumor, left anterolateral.

Laminectomy was performed and a spherical chondrofibroma was found, anterior to the dura, to the left of the median line, arising from the fifth lumbar intervertebral disk and obstructing two thirds of the lumen of the spinal canal.

In tumors in the lower end of the spinal canal, the long intraspinal course of the lumbar and sacral nerves makes it extremely difficult to determine the exact level of the disturbance and whether there is a tumor of the cord, of the cauda, or of the sacrum. The neurologic data may be the same in all cases.

The data obtained by spinal puncture, roentgenologic examination, and rectal examination usually obviate serious blunders.

HYDROSTATIC AND CHEMICAL CHANGES OF THE SPINAL FLUID

On the basis of experimental evidence, Sachs[3] concluded that the spinal fluid is practically without circulation. The slightest change in pressure at any situation is, however, transmitted throughout the remainder of the fluid. Because of the limited space in the spinal canal, a growing tumor eventually interrupts the continuity of the fluid in the subarachnoid space. Such blocking may in most cases be demonstrated by a simple maneuver described by Queckenstedt[4] in 1916. We are indebted, particularly to Ayer,[5] Stookey,[6] Elsberg[7] and Davis and Pollock[8] for contributions of far-reaching clinical importance.

When the spinal puncture needle and the attached manometer are in place, pressure on the jugular veins normally causes a rise in the column of fluid in the manometer, owing to filling of the intracranial venous channels, with consequent displacement of cerebrospinal fluid along the spinal subarachnoid space, through the needle, into the manometer. Release of the pressure on the veins results in prompt fall of the column of fluid in the manometer, owing to a return to previous hydrostatic conditions. When the pathway of the fluid in the canal is obstructed by a tumor, the degree of interference is registered by the column of fluid in the manometer. Should the tumor lie low in the canal, the needle may pierce the tumor and a dry tap result, or the needle may enter the canal above the tumor. When this occurs, block may sometimes be demonstrated by injecting a saline solution into the epidural space by way of the sacral hiatus, and noting the result produced in the manometer.

The fluid obtained from the canal below a tumor is often yellow. The fluid may also be yellow above the tumor, but the color here is usually lighter than below. The content of globulin in the fluid is almost invariably increased. The total content of protein in the fluid in cases of tumor is usually high, whereas that of fluid loculated by adhesions, in which a block may also exist, usually approaches normal. The removal of 7 cc. of fluid normally results in lowering the basal pressure of fluid about half; when the fluid is loculated, the fall in pressure is usually great.

ROENTGENOGRAPHY

Roentgenography occasionally reveals erosion of bone produced by a tumor, or even a calcified tumor itself. Roentgenography is also one of the most certain methods of excluding metastatic tumors and other diseases of bone. The introduction of an opaque medium, such as iodized oils, into the subarachnoid space through cisternal or lumbar puncture usually does not help a difficult situation. When the block due to tumor is sufficiently complete to arrest the oil in its descent, the situation of the tumor usually can be determined without its use; when block is not so complete, the oil may sometimes be seen by aid of the fluoroscope to deviate from its course. Its use in differential diagnosis is limited, and iodized poppy-seed oil 40 per cent, which is the preparation commonly used, is somewhat irritating to the meninges.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis may be difficult. Various inflammatory (suppurative, nonsuppurative, parasitic, granulomatous) malignant and post-traumatic involvements of the cord, membranes, roots, and spinal column come into question, as do degenerative diseases of the cord. Multiple sclerosis deserves special mention, since it may be suggestive of a transverse lesion of the cord and since tumors high in the vertebral canal may simulate multiple sclerosis. Syringomyelia may be difficult to distinguish from intramedullary tumor, and the two may be present in the same case. The spinal cord and roots may be compressed in hypertrophic osteitis and hypertrophic arthritis of the spinal column and in Paget's disease. Spina bifida occulta may be associated with traction and compression bands that lead to progressive paralysis and even with tumor. Spondylolisthesis, or slipping forward of one vertebra on the other, usually the fifth lumbar on the sacrum, may be detected without difficulty by means of roentgenography.

The occasional loss of the patellar reflexes in cases of tumor sometimes leads to the erroneous diagnosis of tabes. Root pains cause the greatest confusion, particularly when disease of the gallbladder, or of the genito-urinary or gastro-intestinal tracts, is associated with tumor of the cord. Retroperitoneal and mediastinal tumors, particularly aneurysms, and leukemic and lymphoblastomatous infiltrations of the cord, provide pitfalls when short-cuts in the examination are attempted. Sometimes edema of the lower extremities is so prominent a feature that cardiac or renal insufficiency is diagnosed.

Repeated examinations may be necessary in order to establish a diagnosis. Occasionally exploratory laminectomy is advisable, particularly if progressive involvement of the cord makes further delay perilous. However, exploration without definite indication of the correct level of disturbance is almost certain to result in disappointment.

ABSTRACT OF DISCUSSION

DR. J. B. AYER, Boston: I have investigated sixty-four cases of tumor involving the spinal cord. These cases of primary tumors give the following figures as to the appearance of symptoms: In eighteen cases of intramedullary tumors, mostly glioma, twenty-six months elapsed before an operation was undertaken, on the average. In thirty-three cases of meningioma, that is, extramedullary tumor arising from arachnoid or from nerve root, twenty-four months elapsed. In four cases of epidural tumor, eight months on the average elapsed before operation. And in nine cases of tumor arising from the intervertebral disk, that is, chondromas, thirty months elapsed. These figures agree closely with the figures Dr. Woltman has given as his average. It is not too satisfactory that these patients should have gone so long when on looking back over the records one can detect symptoms that were highly suggestive and signs which Dr. Woltman has given that were quite characteristic. I will plead guilty to postponing operation on two of these patients. With regard to the symptoms and the signs as given by Dr. Woltman, I can only say that I agree in every way. Pains are usually the earliest symptoms in most cases, in thirty-seven of my series; they are often localizing in value. Atrophy and atrophic paralysis are localizing signs of great value: in four cases of my series and in one case the only real localizing point on which operation was based. The sensory level is a point to be sought for and freqnently is not found. In fifteen of my sixty-four cases a satisfactory sensory level could not be made out. In this group of fifteen cases, and in others in which confirmation is desired, one must turn to other diagnostic aids, and I refer particularly to the use of iodized oil for that purpose. I have used iodized oil in twenty-six of the sixty-four cases. I have had only temporary ill effects from its use. In three cases it was not helpful, as far as my interpretation was concerned. In two the level appeared incorrect and in one the iodized oil passed by a tumor. But that may have been due to technic. I always use the fluid estimation of block, as Dr. Woltman has outlined, and believe it to be a delicate method of determining whether or not there is cord compression. Iodized oil should be used in connection with this if the level is indefinite.

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[4] Queckenstedt: Zur Diagnose der Rückenmarkskompression, Deutsche Ztschr. f. Nervenh. **55**: 325-333 (Sept.) 1916.

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[8] Davis, Loyal; and Pollock, L. J.: A Manometric Method for the Determination of the Level of a Spinal Subarachnoid Space Block, Surg. Gynec. Obst. **49**: 378-379 (Sept.) 1929.

Dr. C. H. Frazier, Philadelphia: There is a striking difference between brain and spinal cord tumors. In the latter, difficulties arise chiefly in differentiating tumor from other lesions, whereas in brain tumors the difficulty lies chiefly in localization. Generally, recognition of spinal cord tumors is not difficult, but there are notable exceptions. I feel that more is learned from failures than from accomplished successes. I therefore reviewed some cases in which at operation I failed to find tumor and was struck particularly by the fact that in none was there a typical history of spinal cord tumor. In most cases the tumor is extramedullary; there is a definite sequence of symptoms, of pain, paresthesia and paralysis, although Dr. Woltman places the motor phenomena before the sensory. I was glad he and Dr. Ayer stressed pain as a conspicuous phase. To me this is an especially informing guide to diagnosis and to localization; usually the first symptom to appear referred from the onset to a constant zone and, while the pain zone may spread with tumor growth and involvement of more roots, the patient always complains of pain at the point at which he first experienced it. Theoretically, there are three cycles in the spinal cord history: the pain or root cycle, the Brown-Séquard cycle and the transverse cycle. Most of the mistakes in my series have been in cases of multiple sclerosis, when many of the typical symptoms are absent and the differentiation is not easy. But I have found that there are several important differentiating points. In multiple sclerosis the history is longer, the progress of the disease is slower. There is no definite sensory level and there are marked remissions not present in tumor of the spinal cord. Mistakes ought not to be made in cases of syphilitic lesions. Patients who suffer most from failure to recognize the source of pain are those with metastatic carcinoma of the spine, prolonged, intolerable, intractable pain, unrelieved by morphine. Finally, syringomyelia may occasionally be mistaken for intermedullary tumor but the presence of syringomyelia does not necessarily exclude the propriety of a laminectomy. Only recently I had the most gratifying results from exposing and draining a large cyst of a cervical cord. There will always be cases in which there is justification for operating in the presence of a reasonable doubt. The surgeon is often faced with a difficult situation when confronted with a case which does not run true to form, but failing to find a tumor at operation there usually are three distinctive features: the patient did not have a typical tumor history, he did not have the characteristic pain phenomena, and he did not have a definite, unmistakable sensory level.

Dr. Loyal Davis, Chicago: There is a tendency for every one to attempt to find a group of symptoms that always mean spinal cord tumor rather than to arrive at a diagnosis of a lesion of certain tracts or cells within the spinal cord at a given level. Such a diagnosis may be made with a complete disregard for the actual nature of the lesion. For example, loss of the deep tendon reflexes, flaccid paralysis, muscular atrophy, and a reaction of degeneration mean the presence of a lower motor neuron lesion. There can be only three sites for such a lesion, and those are the peripheral nerve, anterior roots and anterior horn cells of the spinal cord. The absence of loss of sensation will rule out a peripheral nerve lesion. Anterior root lesions are so rare that they may be disregarded practically. The anterior horn cells are left. This is a horizontal diagnosis and the muscles involved will afford the vertical or segmental level diagnosis. Because a spinal cord tumor requires differentiation from every degenerative disease of the spinal cord, other diagnostic methods may be used to enable one to state definitely before operation that a tumor is present. He has mentioned manometric studies, which includes the Queckenstedt test. Certainly a spinal puncture should never be done for diagnostic purposes unless complete manometric readings are made. The demonstration of the presence of a subarachnoid space block is of extreme importance. The study of the protein content of the fluid above and below a tumor even though a partial block is present is often the deciding diagnostic factor. Dr. Woltman's experience with the injection of iodized oil into the subarachnoid space as an aid in the diagnosis of a tumor is similar to mine. It is a diagnostic procedure that is accompanied by danger and one that is unnecessary. It is well known that if water is poured into a number of connected tubes the surfaces of the liquid will lie in the same plane in each of the tubes. If one of the tubes is sealed at a given level, the introduction of fluid into the tubes will be followed by an increased rise of the fluid level in the unsealed tube. It is not even necessary to deal with rigid tubes. One of them may not be rigid and this fact will still be true. The spinal dural sac lends itself to a study of this hydrodynamic principle. After a lumbar puncture on the patient in the sitting position, the needle is connected in a fluid circuit with a syringe and buret. A given amount of saline solution may then be introduced successively into the dural sac. Each rise of fluid in the buret is recorded. It has been shown that there is an immediate multiplication of the rise in the buret as soon as the block in the subarachnoid space is reached. The amount of each injection of fluid has, of course, remained constant. This level on the buret is measured on the patient's back above the site of the puncture. I have been able to verify the clinical localization beneath a given spinous process in several instances at operation.

Energy and Metabolism.—The sum total of energy remains constant in the universe, but energy may vary in kind. The source of energy on the earth is the sun, excepting the energy of the tides, which is due principally to the moon. The sun unevenly warms the atmosphere, producing winds which drive ships and windmills. The sun's heat lifts the vapor of water into the atmosphere, producing rain, in consequence of which rivers are made to turn machinery. The sunlight acts upon a mixture of hydrogen and chlorine gas, causing them to unite with a loud explosion, and the sun acts upon the green leaf of the plant, causing it to unite carbon dioxide and water, with the production of formic aldehyde, which is built up into sugar, oxygen being given off in the process. The sun's energy required to build up the compound becomes latent or potential in it. Whenever and wherever this sugar is again converted into carbon dioxide and water by oxidation, exactly the same quantity of energy taken from the sun and made potential in the sugar is set free. This sugar in the plant may be further converted into starch, cellulose, fat, and possibly into protein. Plants furnish wood and coal as fuel for the steam-engine. They also furnish the basis of animal food yielding substances which can build up animal tissues, and which can furnish the energy necessary to maintain those motions in the cells whose aggregate is called life.—Lusk, Graham: The Elements of the Science of Nutrition, Philadelphia, W. B. Saunders Company, 1928.

INTRAVENOUS UROGRAPHY BY MEANS OF THE SODIUM SALT OF 5-IODO-2-PYRIDON-N-ACETIC ACID[*]

MOSES SWICK, M.D.
NEW YORK

In 1923 Rowntree and his co-workers[1] of the Mayo Clinic were the first to attempt to visualize the urinary tract by means of the intravenous injection of a 10 per cent solution of sodium iodide and also by the oral administration of that salt. The urinary bladder, and in some cases the pelvis and ureter, could be visualized.

The following year Rosenstein and von Lichtenberg[2] reported at the urologic congress in Berlin their results, repeating the work of Rowntree and his co-workers with sodium iodide but in conjunction with perirenal pneumoradiography.

In the same year Volkmann[3] reported his observations with the use of different halogen compounds; he found the intravenous injection of a 10 per cent solution of sodium iodide to be best.

In 1927 Lenarduzzi and Pecco,[4] tying off the ureter and injecting sodium iodide intravenously in animals, obtained positive roentgenograms of the kidney, pelvis and ureter.

Hryntschak[5] at the urologic congress in Berlin in 1928 and in a publication in 1929[6] reported his results with the use of a large series of bromine and iodine compounds, aromatic in nature, carrying out about 200 animal experiments. Neither the names nor the chemical formulas of the substances used by him are stated. In his publication the only detail of the chemical composition of three of them applied and numbered 13, 27 and 48 is that the first two were iodine and the last a bromine compound. In some of his experiments he simultaneously used an adjuvant, such as caffeine, urea, pituitary extract and atropine, to influence excretion and the dynamics of the pelvis and ureter. He obtained some positive results in animals and in a female patient. In his conclusions he stated that although, two and a half years ago, he had been able to obtain useful intravenous pyelograms in a few cases, the method had by no means met the conditions set forth by him. He, however, expressed the hope of accomplishing his aims by continued investigations.

Ziegler and Köhler[7] reported at the urologic congress in Munich in 1929 and in a publication in 1930[8] their results with the oral administration of 10 Gm. of sodium iodide and 10 Gm. of urea in milk in conjunction with pressure applied over the sacro-iliac articulation through the abdominal wall by means of a special apparatus.

Roseno[9] was the first to achieve practical results by means of the intravenous use of a combination of sodium iodide and urea, called "Pyelognost" [NaI, $CO(NH_2)_2$]. According to some reports it is stated that the substance employed by him is at times associated with reactions. The visualization of the urinary tract, however, is satisfactorily accomplished. Roseno also stressed the functional aspects of the problem. He gave an account of his investigations at the urologic congress in 1928. In 1929 he made a further presentation of his work before the urologic congress in Munich and published an extensive report of the method and the results. In the course of a discussion at the time of the first presentation, von Lichtenberg[10] expressed himself pessimistically concerning the possibility of intravenous urography.

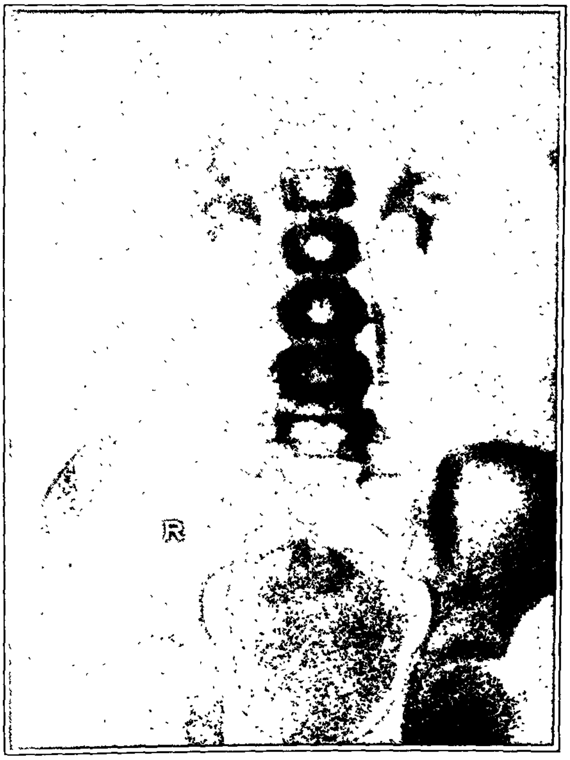

Fig. 2.—Intravenous urogram to exclude right urinary calculus, in a girl, aged 8 years. Slight dilatation of right kidney pelvis and blunting of calices (pyelitis). 25 Gm. of substance.

This work[11] was begun with N-methyl-5-iodo-2-pyridon, synthesized by Professors Binz and Räth.

At the wish of Professor Binz, the efficacy of this substance in the therapeusis of streptococcus infections was under investigation in the clinic of Professor Lichtwitz in Altona, Germany. The study of its excretion through the kidney and into the bile and its iodine content (54 per cent) led to the thought that the substance might be applicable for roentgenologic purposes. Experiments on rabbits demonstrated the fact that the kidney parenchyma and urinary bladder could be visualized after the intravenous injection of the drug; the pelvis and ureter, on the other hand, were poorly seen. Ligation of the latter, however, did bring the upper tract well into view. The gallbladder was not visualized. Simultaneous studies of its excretion, limited to determinations of the iodine component, revealed about 75 to 80 per cent of the injected iodine in the urine in from twelve to sixteen hours.

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[*] Read before the Section on Urology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[*] Owing to lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

[*] This work was carried out with the aid of a grant from the Emanuel Libman Fellowship Fund. It was initiated at the Staedtisches Krankenhaus, Altona, Germany (Prof. Dr. Leopold Lichtwitz; director), continued in the urologic service of the St. Hedwig Krankenhaus, Berlin (Prof. Dr. Alexander von Lichtenberg, director), and has since been pursued in the urologic service of Dr. Beer, the radiologic department of Dr. Jaches, and the Chemical Laboratories of the Mount Sinai Hospital, New York.

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[3] Volkmann, Johann: Zur roentgenographischen Darstellung der Harnwege durch intravenöse Verabreichung schattengebender Mittel, Deutsche med. Wchnschr. **50:** 1413-1414 (Oct. 10) 1924.

[4] Lenarduzzi, G., and Pecco, R.: Inienzioni endovenose di ioduro di sodio, Arch. ital. di radiol. **3:** 1055-1060, 1927.

[5] Hryntschak, T., in discussion of Roseno's presentation, Zur roentgenographischen Nierendarstellung und Pyelographie auf intravenösem Wege, Verhandl. d. deutsch. Gesellsch. f. Urol. **8:** 434, 1928.

[6] Hryntschak, T.: Studien zur roentgenologischen Darstellung von Nierenparenchym und Nierenbecken auf intravenösem Wege, Ztschr. f. Urol. **23:** 893-904, 1929.

[7] Ziegler, J., and Köhler, H.: Ueber perorale Pyelographie, Verhandl. d. deutsch. Gesellsch. f. Urol. **9:** 344-345, 1929.

[8] Ziegler, J., and Köhler, H.: Perorale Pyelographie, Med. Klin. **26:** 10-11 (Jan. 3) 1930.

[9] Roseno, A.: Studien zur intravenösem Pyelographie, Verhandl. d. deutsch. Gesellsch. f. Urol., VIII Kongress, Berlin **8:** 431-433, 1928; Intravenöse Pyelographie, Verhandl. d. deutsch. Gesellsch. f. Chir., LIII Kongress, Berlin **53:** 64-66, 1929; Die intravenöse Pyelographie, Verhandl. d. deutsch. Roentgenges., XX Kongress **20:** 73-75, 1929. Roseno, A., and Jepkens, H.. Die intravenöse Pyelographie, Fortschr. a. d. Geb. d. Roentgenstrahlen **39:** 859-863 (May) 1929. Roseno, A.: Die intravenöse Pyelographie, Klin. Wchnschr. **8:** 1165-1170 (June) 1929; **8:** 1623 (Aug.) 1929; Die intravenöse Pyelographie, Verhandl. d. deutsch. Gesellsch. f. Urol., IX Kongress, Munich **9:** 337-343, 1929.

[10] Von Lichtenberg, A., in discussion of Roseno's presentation, Verhandl d. deutsch. Gesellsch f. Urol., VIII Kongress, Berlin **8:** 435, 1928.

[11] Swick, Moses: Darstellung der Niere und Harnwege im Roentgenbild durch intravenöse Einbringung eines neuen Kontraststoffes des Uroselectans, Verhandl d. deutsch. Gesellsch f. Urol., IX Kongress, Munich **9:** 328-331, 1929; Klin. Wchnschr. **8:** 2087-2089 (Nov.) 1929.

Concerning the toxicity and tolerance, I found that 0.2 Gm. per kilogram of body weight could be administered intravenously to the rabbit without any demonstrable ill effects; 0.33 Gm. per kilogram, however, produced transient generalized disturbances. On the basis of these observations, one could theoretically give to a 60 kilogram individual 18 Gm. of the substance as a maximal dose. Because of marked individual differences in man, the quantity administered was far below the calculated one. The adult received 6 Gm. of substance. Headache, nausea, vomiting, generalized discomfort, and in two cases transient diplopia were disturbing factors. The oral and rectal administration of this drug also yielded similar roentgenologic results and toxic manifestations. In all cases the urinary bladder was seen. The kidney parenchyma itself appeared to stand out more in relief. In man, the upper urinary tract was outlined only after producing a temporary artificial obstruction in the ureter by means of a bougie at the time of maximal excretion. The attained results, though not sufficiently good for practical purposes, were encouraging and pointed to the possibilities of further development.

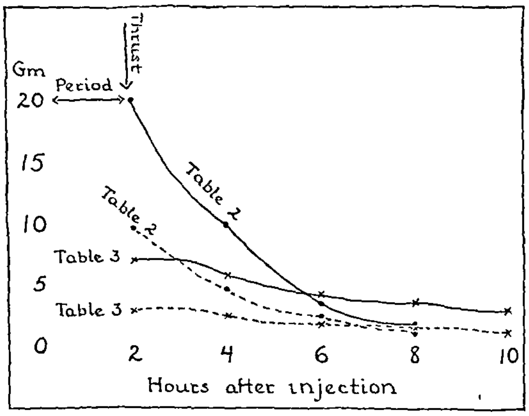
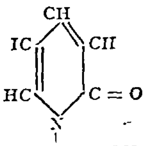


Fig. 3.—Excretion of normal and of abnormal kidneys, 50 Gm. dose, tables 2 and 3: solid line, weight of precipitable acid excreted, in grams; broken line, weight of iodine excreted.

The experience with this substance brought out the need for a modification, possessing better tolerance and greater solubility, so that a larger dose could be administered. In this way, a higher concentration of the excreted iodine component could be hoped for. The observation of double vision and the possibility that the methyl radical might be responsible were noted. At a conference between Professor Binz and his associates, Professor Lichtwitz and me, these results and observations were presented. Professor Binz, who followed these investigations with great interest, said that he felt that these needs could be fulfilled. He supplied us with several compounds which he states belonged to the selectan group, synthesized by him and Professor Räth at an earlier date, and which now were prepared in larger amounts for our purpose and studies with the aid of Dr. Hillgruber.[12] One of them, insoluble in water, was soluble in very strong alkali. It could not be given intravenously and was therefore administered by mouth to a dog and in gelatinum duratum capsules to a male patient at Professor Lichtwitz's clinic with negative results. Professor Binz had furnished me with this drug one week before the conference mentioned.

Thereafter I continued the work in the urologic service of Professor von Lichtenberg in Berlin. To eight patients, 7.5 Gm. of the original substance, N-methyl-5-iodo-2-pyridon, were given by mouth with the already described reactions. The outline of the bladder was seen. Only in one case, that of a stone obstruction of the ureter about one inch below the ureteropelvic junction, was a useful roentgenogram of the pelvis and ureter above the stone obtained. The insoluble compound used at Professor Lichtwitz's clinic was now tried again at Professor von Lichtenberg's division with the same negative results. Another compound of this group, having a higher iodine content and a sodium acetate radical substituted for the methyl, was then tried. Though more soluble than the previous one, it was still unsuitable for intravenous application. The oral administration was likewise inadequate because of the poor absorption by the gastro-intestinal tract. When a preparation having a lower iodine content and the sodium acetate group substituted for the methyl was furnished by Professor Binz, the clinically applicable and successful substance, 5-iodo-2-pyridon-N-acetate of sodium, was finally obtained. This compound differs from the original only in the substitution of sodium acetate in place of the methyl group. It was fortunate that this preparation, introduced abroad as "Uroselectan," proved to be free from all accompanying reactions, to have quite an extraordinary affinity for the kidney, and to be very soluble in water. These needs were therefore completely fulfilled and satisfactory roentgenograms could now be obtained, as reported by me at the urologic congress in Munich in 1929.[11] Professor von Lichtenberg, who took up the subject directly after me, stated that he considered that which had been communicated a significant advance.[13] Some weeks later, my paper was published in the *Klinische Wochenschrift* and was followed by another contributed by Professor von Lichtenberg and me.[14]

The 5-iodo-2-pyridon-N-acetate of sodium (42.2 per cent iodine) is nontoxic, very soluble in water and *neutral in its reaction.*



The iodine in the molecule exists in a stable organically bound state. Neither in the injected solution nor in its excreted form is iodine present in ionized state. These facts, despite the relatively large quantity of iodine in the amount of this substance that can be administered with impunity, would seem to explain, at least empirically, why iodism has never been observed. The tolerance for this compound is exceedingly great. A rabbit would receive 3 Gm. per kilogram of body weight without any harm. With the latter dose as a basis of calculation, it follows that 180 Gm. of the substance, or, in terms of iodine, 75.6 Gm., can be theoretically administered to a 60 kilogram person. The substance is excreted as such through the urinary tract, being recovered from the urine as the light yellow, insoluble acid on the addition of a dilute mineral acid. Because of the relative simplicity and accuracy and because I found it to be of assistance in the evaluation of the roentgenologic results, it has been considered feasible to apply a quantitative determination of this insoluble, precipitated acid-form as a basis for a test of renal function.

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[12] Medizinische Mitteilungen, Schering-Kahlbaum, February, 1930.

[13] Von Lichtenberg, Alexander: Klinische Prüfung des Uroselectans, Verhandl. d. deutsch. Gesellsch. f. Urol., IX Kongress, Munich 9: 332-336, 1929.

[14] Von Lichtenberg, Alexander; and Swick, Moses: Klinische Prüfung des Uroselectans, Klin. Wchnschr. 8: 2089-2091 (Nov.) 1929.

Table 2.—*Quantitative Determination of Urine Specimen* *

Urine Specimen	Volume, Cc.	Specific Gravity	Weight of Precipitated Substance, Gm.	Iodine Calculated from Substance, Gm.	Iodine Determination of Urine
2 hours	850	1.014	19.79	9.004	9.6295
2 hours	200	1.034	9.395	4.275	4.76
2 hours	120	1.032	4.604	2.095	2.4578
2 hours	91	1.024	1.792	0.8154	1.0396
2 hours	93	1.014	No precipitate		
2 hours	150	1.008	No precipitate		
Total grams			35.581		17.889
Percentage of substance excretion					91.23 per cent
Percentage of iodine excretion					95 per cent

* A woman, 25, with good renal function; 50 Gm. of substance injected.

The recovery and identification of the excreted substance have been established in the following manner:

The addition of a dilute mineral acid—HCl or H_2SO_4—to urine containing the excreted soluble salt of the 5-iodo-2-pyridon-N-acetic acid results in the precipitation of the insoluble acid form. The precipitating agent should be added gradually until no more precipitation occurs. After one hour's settling, the insoluble acid is filtered by means of suction on a Buchner funnel and is washed free from the precipitating agent with distilled water, as determined by the silver nitrate test for hydrochloric acid or the barium chloride test for sulphuric acid. The residue is dried to a constant weight at 80 C. For identification, a variety of samples of the urinary precipitate were analyzed for their iodine and nitrogen content; their acid equivalents and melting points were also determined. These were simultaneously controlled by comparison with similar determinations on substance precipitated from clean manufacturer's samples of the sodium salt.

Table 3.—*Quantitative Analysis of Urine Specimen in a Case Presenting Poor Function* *

Urine Specimen	Volume, Cc.	Specific Gravity	Weight of Precipitated Substance, Gm.	Iodine Calculated from Substance, Gm.	Iodine Determination of Urine, Gm.
2 hours	335	1.019	6.70	3.05	3.12
2 hours	260	1.022	6.10	2.78	2.84
2 hours	145	1.025	3.86	1.76	1.82
2 hours	160	1.025	3.56	1.62	1.79
2 hours	138	1.022	2.71	1.23	1.26
Total grams			22.93		10.83
Percentage of substance excretion					53 per cent
Percentage of iodine excretion					52 per cent

* A woman, aged 42; 55.5 Gm. of substance injected.

The brown color of the precipitate, recovered from some of the urines, is believed to be due to the admixture of urinary pigment; this is demonstrated as follows:

1. If animal charcoal is added to boiling water containing the brown colored acid-form in solution, the recrystallized substance no longer is brown; it now is light yellow, resembling pure precipitate.
2. Conversely, when a manufacturer's sample of the solution of a sodium salt is added to normal urine and then the acid form precipitated from it (a procedure analogous to that of the recovery of the substance from the urine), the precipitate obtained is then brown. The same pure solution, however, with the addition of acid alone, yields a light yellow precipitate.

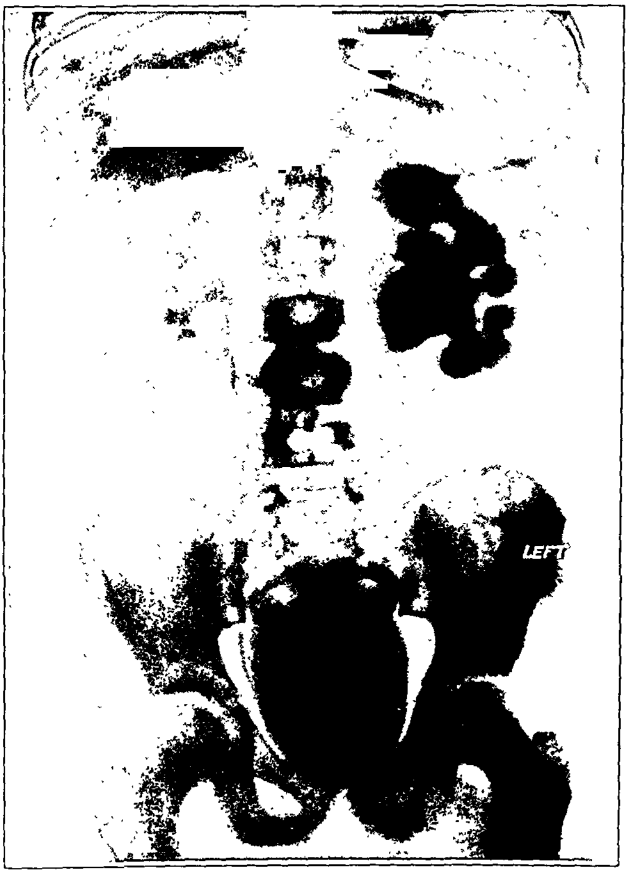

Fig. 5.—Marked dilatation of ureter, kidney pelvis and calices in a boy, aged 10 years. 25 Gm. of substance. (Case of Drs. Leopold and Stewart of the Lenox Hill Hospital, New York.

3. Qualitative analysis of the precipitate, following the scheme for the examination of urinary calculi, is negative for nonpigmentary urinary constituents.

The next consideration is whether the precipitation is quantitative. To determine this, two hour urine specimens of patients injected with a known amount of the sodium salt were collected. On each specimen two simultaneous determinations were made, one for its iodine content by a sodium carbonate and sodium nitrate fusion method; the other by precipitating the acid and determining its constant weight. Since the acid by molecular weight contains 45.5 per cent of iodine, the quantity of iodine found by multiplying the weight of the precipitated acid by 45.5 should correspond to that of the total iodine determined directly from the urine. Tables 2 and 3 illustrate the results obtained.

Comparing columns five and six, that is, the calculated iodine values with the independent iodine determinations, one observes a constant, close agreement. The reason for the relatively small differences between the calculated (the lower values in column 5) and the quantitatively determined iodine (column 6) can be explained by the presence of the precipitated acid form in the filtrate as a result of its slight solubility. It has been found that the iodine content of the filtrate plus the calculated iodine compare very favorably with that of the quantitatively determined iodine. There were isolated cases in which there were discrepancies, believed, however, to be due to an error in the technic of iodine determination. This phase is being investigated further.

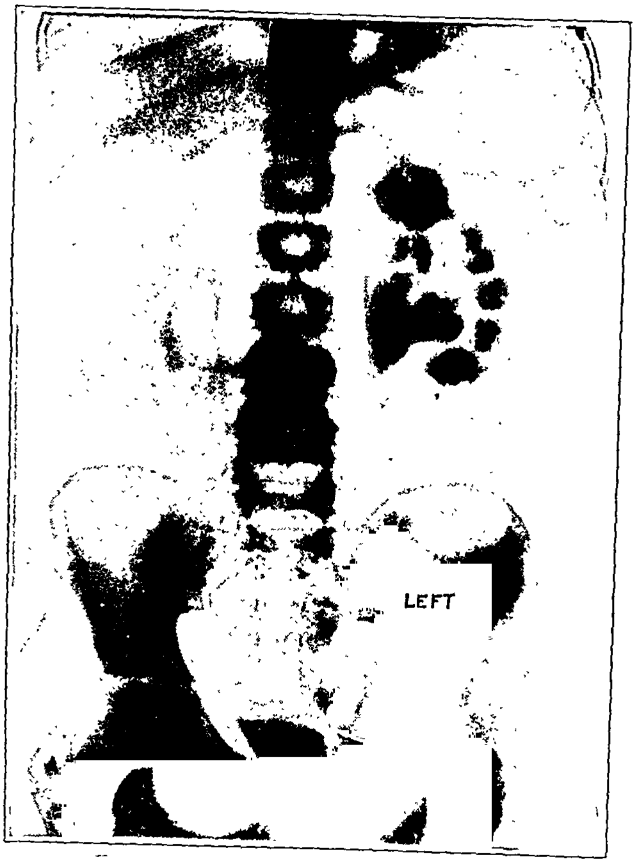

Fig. 6.—Same patient as in figure 5, with bladder partially empty, now demonstrating stricture (congenital) ureterovesical junction with marked dilatation of lower part of ureter, which was hidden on previous film by distended bladder. (Case of Drs. Leopold and Stewart of the Lenox Hill Hospital, New York.)

Finally, in order to establish the percentage excretion of the iodine and of the precipitated acid, it is necessary to determine the actual amount of injected salt in terms of the iodine component, and also in terms of the precipitated acid. It is obvious that, in the preparation of the solution, losses will occur. The following are the factors and sources of error which should be considered:

1. Apothecary scale used—about 2 per cent.
2. Loss due to the moisture content of the salt—about 3 per cent.
3. Loss through double filtration of the solution—about 3 per cent.
4. An indeterminate loss due to the impossibility of a quantitative transfer of the 40 per cent solution from the glassware used in its preparation.
5. The difference in molecular weight of the sodium salt (301) and the precipitated acid (279), 7 per cent.
6. Loss due *to the solubility* of the precipitated acid, a fraction of 1 per cent.

Thus, to establish the extent of inaccuracy in the quantity of iodine actually administered as against its theoretical content, a solution as for injection was prepared. Its actual iodine content, determined chemically, was found to be on the average 89 per cent of the theoretical. This figure can be designated as "the iodine factor."

The method for establishing the "precipitated acid factor" was similar to the foregoing except that the prepared solution was then distributed among normal urines so that each two hour specimen resembled approximately in its volume and substance content those excreted by patients injected with different amounts of the solution of the sodium salt. (In carrying out the renal function test by means of the quantitative estimation of the excreted substance, five or six two-hour urine specimens are collected.) Table 4 demonstrates the average established factor; namely, from 77 to 78 per cent.

Table 4.—*Corrected Acid Substance: Factor for Calculating Percentage of Excretion*

	Druggist Scale	Chemical Scale	Per Cent of Loss
1.	40 Gm. of substance..............	39.525 Gm.	(—) 1.19%
2.	Drying	38.2 Gm.	(—) 3.35%
3.		....	(—) 2.95%

4. Aliquot for iodine determination, 4 cc. of total 96 cc.
5. Distribution on basis of average urinary output by volume and by weight

Specimen	Volume, Cc.	Containing Approximately	Gm. Precipitated Acid Recovered
A. 2 hrs.	550	1/2 solution precipitated and filtered	16.95
B. 2 hrs.	175	1/4 solution precipitated and filtered	8.19
C. 2 hrs.	150	1/10 solution precipitated and filtered	3.515
D. 2 hrs.	90	1/20 solution precipitated and filtered	1.555
			29.850
Aliquot 4 cc.			1.24
			31.090

Acid substance factor (apothecary scale), $\frac{31.09}{40.0} = 77.7\%$

Acid substance factor (chemical scale), $\frac{31.09}{39.525} = 78.66\%$

This factor is variable within narrow limits depending on points enumerated

In other words, to establish the basic acid value, *22 per cent is to be* deducted from the theoretically administered weight of sodium salt when calculating the percentage of excretion in terms of acid substance. Similarly, *11* per cent is to be deducted from the theoretical iodine content of the injected sodium salt in order to estimate the percentage excretion in terms of the iodine component.

These aspects being clarified, it now becomes evident that quantitative determinations of the excreted substance in terms of the precipitated acid can form the basis of a test for renal function. (The quantitative estimation of the precipitated acid has been chosen in preference to that of the iodine because of its relative simplicity and reliability.) Normally about 85 to 95 per cent of the substance can be recovered from the urine within from eight to twelve hours after the injection. In two cases 98 per cent was recovered. From that period on, under normal conditions, as a result of the solubility of the precipitate, which during this stage occurs in such small amounts, its presence can be detected only by an iodine determination method. It is thus found that the excretion of very small amounts of the substance goes on from three to ten and perhaps more days after the injection. For example:

First twenty-four hours, 850 cc., 0.3195 Gm. of iodine.
Second twenty-four hours, 1,200 cc., 0.0218 Gm. of iodine.
Third twenty-four hours, 1,400 cc., 0.0036 Gm. of iodine.
Fourth twenty-four hours, 1,400 cc., none.

From the results already obtained, it is seen that the normally functioning kidney possesses the ability to excrete this substance in a relatively large quantity within a given short period. This may be characterized as "the thrust excretion ability of the normally functioning kidney," present during the first two hours. To illustrate, from about 45 to 65 per cent of the total precipitable acid is recovered during the first two hours, about 20 to 33 per cent during the next two, and the remainder during the subsequent hours. Figure 3 illustrates the curves of excretion in a normally functioning and in a poorly functioning kidney.

Aside from the dose administered and the extrarenal factors influencing renal secretion, the thrust excretion ability of the normally functioning kidney plays a vital rôle in determining good roentgenologic visualization. During the later periods, in spite of the fact that the substance is still being excreted, poor or no visualization is obtained. Good visualization is dependent on a definite concentration of the shadow-producing element determined by the factors enumerated. When the additional mechanism of obstruction is present, visualization may be had although the normal height of excretion is absent, provided excretion takes place. On the other hand, under the same circumstances but with normal excretion, intensification of the shadow results. Thus, in a general way, it may be said that visualization, poor visualization, or no visualization is dependent on the functional activity of the kidney, in other words, its concentrating ability, as well as on extrarenal factors.

However, of the 122 cases studied at the Mount Sinai Hospital, one unexplainable exception has been noted. A woman, aged 54, with pain in the back and left kidney region, had an intravenous urogram done, June 2, 1930. Visualization was absent on the right side in all plates. The left urinary tract appeared normal. A large shadow of what looked like kidney was seen in the right upper quadrant. A faint curvilinear shadow in the bony pelvis on the right side was also observed (ureter?). June 4, cystoscopy and a right retrograde pyelogram revealed normal indigo carmine from both sides as well as the presence of a right sacral kidney. In order to gain an insight into this discrepancy, another intravenous urogram was repeated about two and one-half weeks later. The right kidney pelvis again was not visualized though the ureter could be definitely seen. This example serves to illustrate the need for caution in passing final judgment with absolute certainty on the functional state of the kidney by this method alone.

Moreover, it is also important to bear in mind that the functional activity of the kidney may be temporarily or permanently inhibited, and that the mere nonvisualization at a given examination does not necessarily signify permanent renal damage. The following case is illustrative:

Cystoscopic examination of a man, aged 41, was done, and a left retrograde pyelogram was made. At that examination normal indigo carmine excretion from both ureters was observed. The left pyelogram was normal. Following this examination, hematuria and marked pain in the left loin set in and persisted for about one week. When both symptoms had subsided, intravenous urography was done. Absent visualization of the pelvis and ureter with good kidney outline on the left side and a double pelvis and forked ureter on the right were noted. However, another intravenous urographic examination, about three months later, revealed a normally functioning and appearing left urinary tract in addition to the previous observations on the right; in other words, a case of temporary functional inhibition following retrograde pyelography.

Therefore, to evaluate intravenous urography and to interpret correctly the results obtained from it, it is of paramount importance to consider this method as an excretory one and to bear constantly in mind the processes occurring in the renal and extrarenal systems.

As an adjuvant in assisting one to interpret and to evaluate the radiologic results, it is felt that simultaneous determinations of the substance recovered in the urine as described are sometimes helpful. It is not assumed that this test is superior to other tests of renal function; but, in view of its relative simplicity and the fact that it forms part of the intravenous examination, its use is advocated solely as a confirmatory aid in the interpretation of the intravenous urogram.

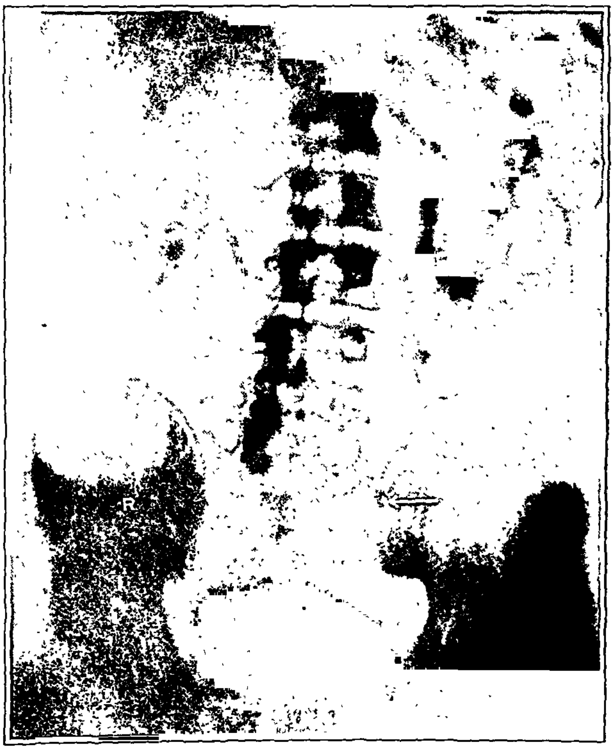

Fig. 7.—Impassable stone obstruction, lower third of the left ureter, in a boy, aged 19. Intravenous urogram—good function—showing dilated ureter, pelvis and calices above stone. Right side normal. 50 Gm. of substance. Arrow points to stone.

The blood urea, phenolsulphonphthalein, the indigo carmine, and the dilution and concentration tests are of great assistance in establishing the contraindication to the application of this method in a given case of bilateral advanced kidney disease. Where the blood urea is high and the concentrating power of the kidney poor, the method yields few anatomic data and becomes not only superfluous but perhaps attended by danger. For information of renal function under such circumstances, more simple and less expensive means, such as the blood urea and phenolsulphonphthalein determinations, serve the purpose.

In addition to anatomic data derived by this physiologic procedure, another vitally important phase of the urinary tract that can be studied without the introduction of instruments is the functional dynamic activity of the pelvis, ureter and bladder.

METHOD OF ADMINISTRATION

For an adult, the usual dose, 40 Gm. of substance, is added in small quantities to doubly distilled water, which has been previously warmed to a moderate degree so that the resultant volume is about 100 cc. Stirring aids the process of dissolving. The solution is filtered twice through ordinary filter paper into a 250 cc. clean Erlenmeyer flask, which is preferably stoppered with fresh wax paper. It is then sterilized in a water bath for half an hour or autoclaved at 15 pounds pressure for twenty-five minutes. The syringe method, in preference to that of the gravity, is chosen, in the feeling that it is more apt to avoid the possibility of a foreign body reaction. A sufficient number of record syringes plus injection needles is sterilized in distilled water. The injection is done in two or three stages at intervals of from three to five minutes. The first roentgenogram is usually taken about fifteen or twenty minutes after the last injection. The subsequent three plates are made about twenty-five minutes apart. When functional disturbances are present, it is advisable to have additional later plates, at approximately one to three hour intervals, taken to determine definitely the absence of visualization, or the presence of late visualization. Particularly in those cases in which there is the added factor of obstruction—ureteral stone, prostatic enlargement, or ureteral strictures—there may be a late, but good or poor type of visualization. Experience alone will guide one in the interpretation of the plates, as well as the number of plates that may be necessary.

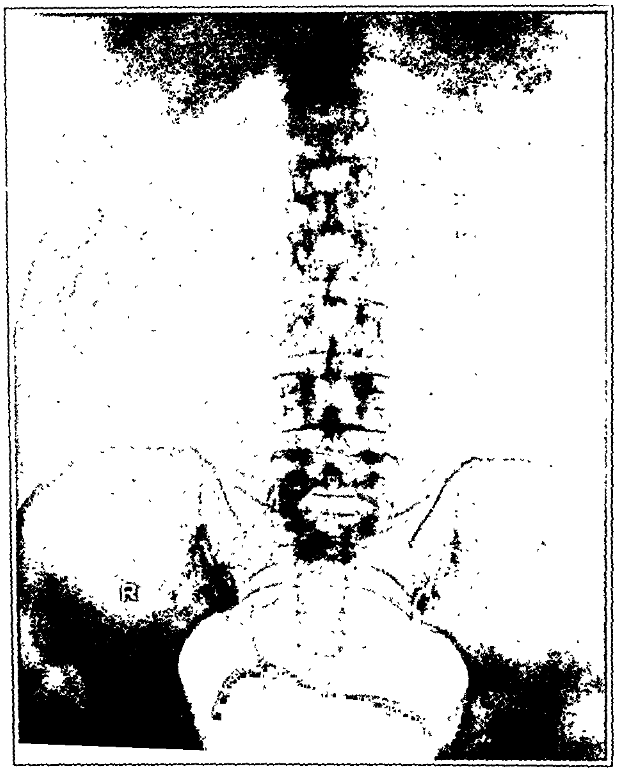

Fig. 9.—Intravenous urogram of a woman, aged 45, showing nonfunctioning sacculated right kidney, proved at operation to be a tuberculous pyonephrosis. Retrograde pyelogram impossible. Ureter could not be entered. Left side normal. 40 Gm. of substance.

An added factor of great importance which has improved the results as far as density, clarity and consistency of shadow are concerned has been the application of a moderate degree of compression by means of an air-inflated rubber balloon (basket ball bladder), maintained over the urinary bladder region for from five to ten minutes prior to and during the taking of each roentgenogram. It is also advisable to take one or two plates without compression several minutes after any of the preceding ones and to have the patient empty his bladder after the second or third plate.

From studies controlled on the same patient with different doses several days apart, the impression gathered is that the administration of a 50 to 60 Gm. dose of substance in 40 per cent concentration, given in divided portions at about a ten minute interval, yields denser and clearer roentgenograms. However, in view of the fact that this increased dosage means additional expense and that with a 40 Gm. dose sufficiently good practical results are usually obtained, particularly with compression, this change is at present advocated with some reserve. A 20 Gm. dose in adults has also given positive results.

The doses (40 per cent concentration) for children are as follows: 13 years of age, from 25 to 30 Gm.; 9 years and up, 25 Gm.; 6 years and up, 20 Gm.; 4 years and up, 16 Gm.; 2 years, 14 Gm.; 6 months, from 10 to 12 Gm.

REACTIONS

During the injection the patients experience transient thirst and generalized warmth, particularly involving the face and bladder regions. Nausea and vomiting of transient duration have occurred twice. Occasionally there is pain up the arm of injection, which, however, disappears shortly afterward. Paravenous infiltration produces pain but no necrosis. Thrombosis at the site of the injection has not been observed. The urine does not reveal any evidence of renal damage by the substance.

APPLICATION

The field of application of intravenous urography is evident whenever cystoscopy, ureteral catheterization or retrograde pyelography is dangerous or impossible for infectious or mechanical reasons, and whenever these procedures in general are indicated. The method, aside from offering a bilateral urogram, is also helpful in the presence of hematuria, in cases of implanted ureters, in children, and in individuals in whom instrumentation is taxing and harmful.

CONTRAINDICATIONS

Patients with uremia or latent uremia, as determined by the usual clinical methods, do not lend themselves to the application of this method. It is therefore wise to precede the examination by a determination of the blood urea. Experience with hyperthyroid patients is still wanting. The drug in cases of pulmonary tuberculosis does not seem to have any deleterious effect.

For pyeloscopic purposes this method will be feasible only when the density of the excreted substance is sufficiently great. When the function is poor, pyeloscopic results will be correspondingly deficient.

In my original paper published in the *Klinische Wochenschrift* in November, 1929, I[11] stated that the iodine component could not be demonstrated in the circulating blood. In the report by Heckenbach[15] from von Lichtenberg's clinic, Tourné and Damm have shown this to be incorrect. Studies which I was making at the time confirmed their observations. I could detect its presence in the blood as late as ten hours after a 50 Gm. dose. The stools and sputum of the patients injected show the presence of the iodine component in relatively small amounts. In the stool this element could be detected in a bowel movement as late as three to four days. It is also of interest to note that the skin of rabbits injected intravenously with a solution of the substance contained the iodine component.

1 East One Hundredth Street.

INTRAVENOUS UROGRAPHY (SWICK METHOD)*

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The history of the development of this method as well as the chemical and pharmacologic properties of the substance employed are dealt with in greater detail in the paper by Dr. Swick presented before the Section on Urology.

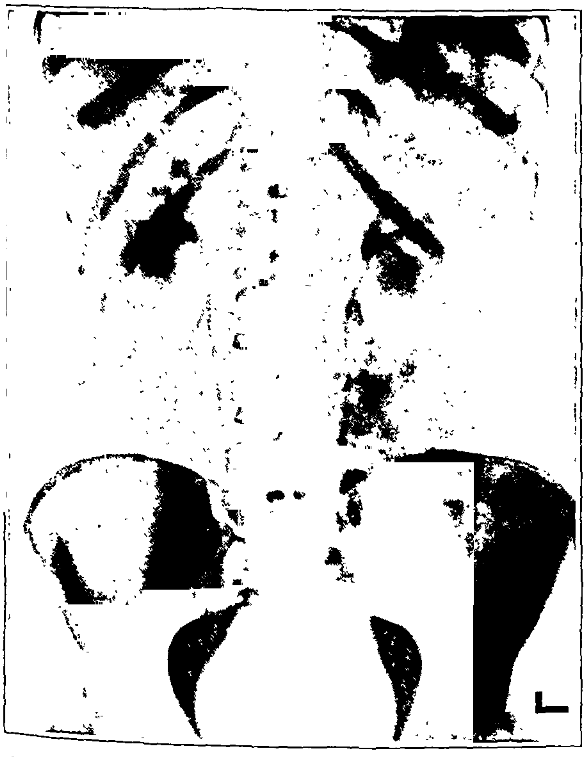

Fig. 1.—Normal urogram of an adult; 60 Gm. of substance injected.

Swick states that the present substance, prepared by Professors Binz and Räth, is nontoxic, very soluble in water, neutral in reaction and under normal conditions excreted as such through the urinary tract within eight to twelve hours to the extent of from 85 to 95 per cent. Iodism has never been observed. Its tolerance is exceedingly great. From about 45 to 65 per cent of the substance is normally excreted during the first two hours. For this reason, the urograms show their greatest intensity during this period.

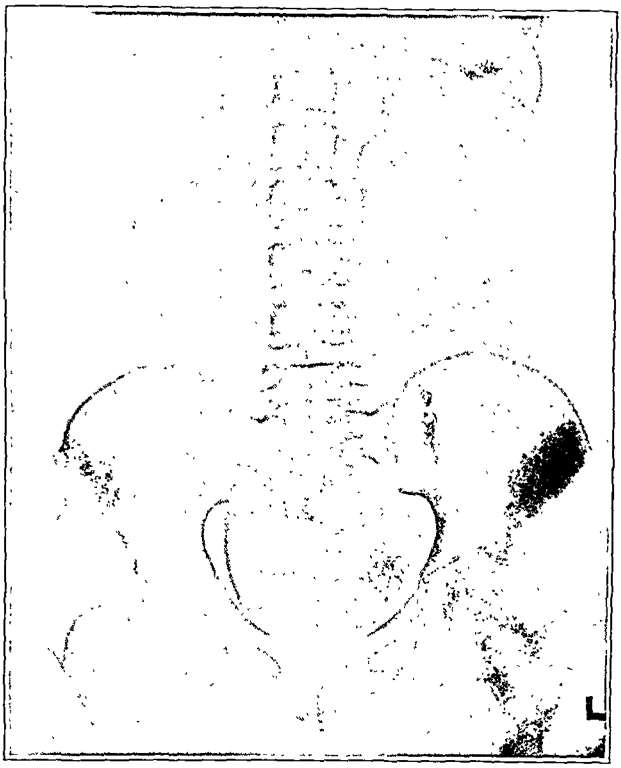

Fig. 2.—Normal urogram of patient, aged 13½ years; 30 Gm. of substance injected.

The technic of administration is as follows: A 40 per cent solution is made up in doubly distilled water to a volume of 100 cc., filtered and then sterilized. Injection is done by means of several record hand syringes into the veins of the arm. The quantity administered is, for an adult, from 40 to 60 Gm. of the substance in a 40 per cent concentration. Younger persons receive proportionate doses. For children aged from 6 to 9 months the dose is 10 or 12 Gm. of the substance; up to 2 years, 14 Gm.; 4 years and up, 16 Gm.; 7 years and up, 20 Gm.; from 10 to 13 years, 25 Gm., and 13 years old and up, 30 Gm. It was found roentgenologically that the injection in adults of from 50 to 60 Gm. of substance yields the better shadows. If 60 Gm. of substance is used, the full quantity of the solution may be injected continuously, or half is injected first and then the other half ten or fifteen minutes later. The shadows obtained then are nearly, though not quite, as dense as those by the retrograde or cystoscopic method. During the injection the patient has an evanescent sensation of thirst and warmth; occasionally in the injected arm pain is experienced during the injection. I have observed no other reaction.

The roentgen technic is that usually employed in urinary tract examinations: the Potter-Bucky diaphragm, a 14 by 17 film (occasionally a smaller size if only part of the tract is wanted), and compression by means of the rubber bag. The patient is kept on the table for at least one hour after the injection. The best roentgenologic results are obtained fifteen, thirty-five and sixty minutes after the last injection. After that period good outlines are obtained only in cases of delayed renal function, combined with obstructive lesions. It is therefore important to have each film developed immediately in order to determine for how long a period the taking of roentgenograms should be continued. It may sometimes be necessary to take roentgenograms at one to three hour intervals until good shadows are obtained. Sometimes it is necessary to have the patient empty the bladder in order better to demonstrate the lower ends of the ureters.

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[15] Heckenbach, W.: Funktionsuntersuchungen bei der Ausscheidung des Uroselectans, Klin. Wchnschr. 9: 684-689 (April) 1930.

[*] From the radiologic and urologic services of the Mount Sinai Hospital.

[*] This article is abbreviated in The Journal by the omission of six illustrations, which will be found in the author's reprints.

[*] Read before the Section on Radiology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

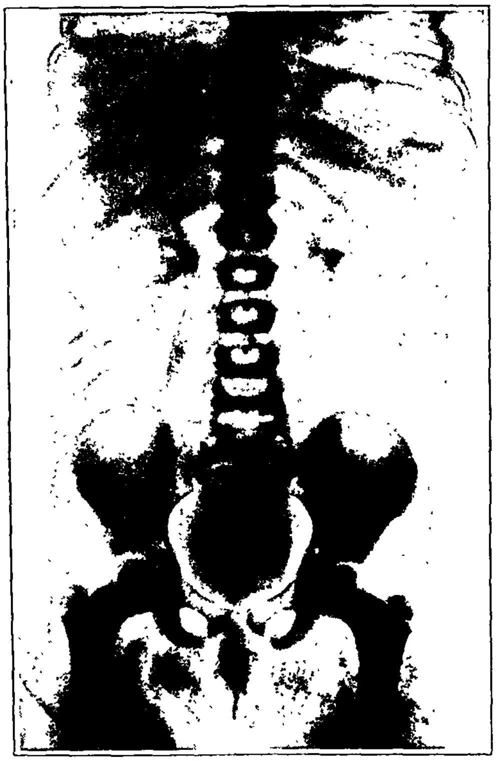

Fig. 3.—Right-sided pyelo-ureteritis in girl, aged 5½ years; 16 Gm. of substance injected.

The intravenous method is indicated in all instances in which urography is desirable and is applicable in many more cases than the retrograde method, because the objections to instrumentation are eliminated. It has thus been possible to employ this method in children as young as 6 months and in adults with large prostates, cardiac disease or other contraindications.

Contraindications to the use of the intravenous method would be actual or latent uremia in which, as a result of the poor concentrating power of the kidney, meager or no anatomic information could be obtained. For functional data, much simpler and less expensive methods, such as the blood urea determination, the phenolsulphonphthalein, indigo carmine, and the dilution and concentration tests can be applied. In addition, the procedure might prove dangerous. Therefore, it is strongly advocated by Swick that patients about to be subjected to the intravenous procedure should have at least a blood urea, phenolsulphonphthalein and concentration tests performed. The intravenous method, however, does not eliminate the retrograde or cystoscopic method; this is especially true in cases in which kidney function is impaired and therefore the iodine concentration is so poor that the tract is not sufficiently visualized. Here the retrograde method has to be resorted to in order to obtain an anatomic outline of the renal pelvis and ureter. The bladder will generally be shown well, unless both kidneys are below par. The faintest shadows are obtained with poorly functioning kidneys, the densest when obstruction is present. The roentgenographic contrast is heightened by means of the compression bag, which should be kept on for from five to ten minutes prior to and during the taking of the roentgenograms. One or more after each of these might also be taken without compression.

The advantages of the intravenous method are manifold. It intensifies the kidney shadows, frequently bringing out irregularities in outline. Instrumentation is avoided which even under favorable circumstances is, to say the least, very unpleasant and which, as will be seen from some of the illustrations, seems to cause a temporary inhibition of function of the kidney subjected to it. The entire urinary tract, including the bladder, is shown at one application of the method. With the cystoscopic method it has generally been found necessary to inject each side at separate sessions so as to avoid the severe reactions that frequently followed bilateral pyelography performed at one session. For the same reason the intravenous method is safer in cases of solitary kidney. Anomalies in the urinary tract, such as double ureters, are revealed in some cases in which the cystoscopic method failed for technical reasons. It is not subject to failure in stricture of the ureter and is the only useful method in the study of the result of transplantation of ureters. It eliminates the artefacts which not infrequently complicate the other method and sometimes make one hesitate to designate a transparency within the opaque material as a calculus

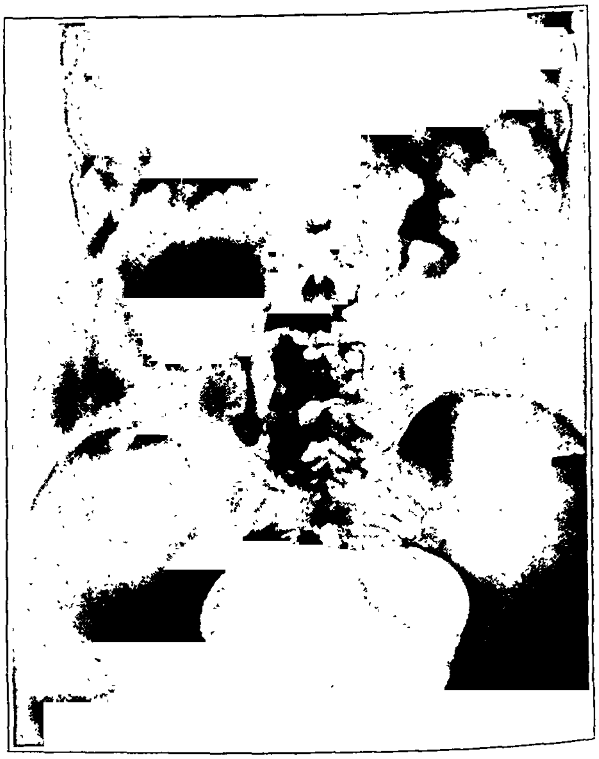

Fig. 4.—Right nephropexy in woman, aged 31; 40 Gm. of substance injected; distortion due to operation; depression in left upper quadrant of bladder is due to the uterus.

rather than an air bubble or to say that a defective calix is due to a pathologic lesion and not to poor injection technic, especially when the urologist happened to be one of limited experience.

An added advantage of this method is that it demonstrates not only the anatomy of the urinary tract but also its function. The roentgenographic determination of function is, however, not sufficient in itself; according to Swick it should be supplemented by the quantitative determination of the excreted substance, which can be recovered from the urine. It will undoubtedly also give information regarding peristalsis of the ureters and the physiology of the pelvis and calices. In some cases of renal calculus, spasm of the calices was shown, probably as a reaction to the presence of the foreign body. In others in which the retrograde method preceded the intravenous, temporary nonvisualization on that side was present. It is important, therefore, to remember that the mere nonvisualization at a given examination does not necessarily denote permanent renal damage and therefore it is wiser to use the term functional inhibition.

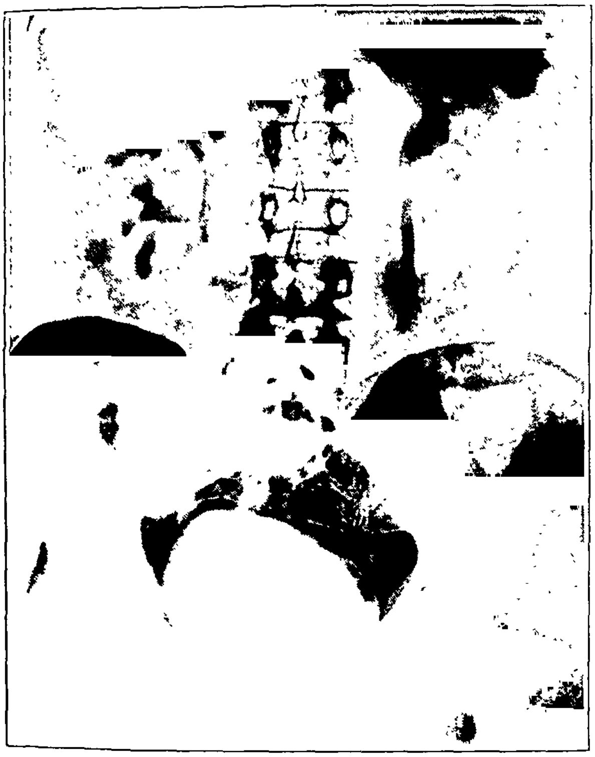

Fig. 5.—Bifid right renal pelvis and forked ureter. One week after a left retrograde pyelogram which was done three months previously, the left side did not visualize at all, and the right side but slightly. Now both sides are well visualized.

One Hundred East Ninety-Fourth Street.

ABSTRACT OF DISCUSSION

Prof. Leopold Lichtwitz, Altona-Elbe, Germany: Pyelography by way of excretion is an old desire. Dr. Rowntree was the first to attempt the visualization of the urinary tract by means of sodium iodide. Professor Binz of Berlin, who for a long time was greatly interested in chemotherapy, invented and prepared with his collaborators the group of selectans. Selectan and selectan neutral were sent by him to the clinic at Altona with the idea of attempting to influence coccus infections. In order to attempt treating infections of the kidney pelvis and gallbladder, we studied the output by the kidney and liver. We obtained evidence that the preparations did not cause iodism. The fact that these selectans are iodine-containing, excretable by the kidneys and liver and cause no iodism, which had been the greatest obstacle in the earlier attempt, naturally led to the idea of testing them for the widely desired intravenous pyelography. Surely the invention of Professor Binz is the one leg of the new method. The second basis is the work of Dr. Swick. Important as is the existence of preparations, they become valuable only when the right person takes them for a special purpose. This is made clear by the fact that the preparations of Professor Binz were tested for the same purpose before Dr. Swick began his studies (without his knowledge) by a man of great experience in research work—without sufficient results. Between the important work of chemical preparation and final success, there came the hard work of a clever and energetic man, one with the deepest devotion to and greatest passion for research work. Therefore, we appreciate the work of both Professor Binz and Dr. Swick, and as this work is based on the invention of a famous German chemist and the investigations of a young American working in Germany, it may be considered as another hopeful symptom of scientific cooperation and friendship between our two countries.

Prof. Arthur Binz, Berlin, Germany: It was my idea in 1921 to attach arsenic or other elements such as iodine to heterocyclic nuclei, such as those of the alkaloid group, and possibly thereby intensify therapeutic efficiency in the treatment of syphilis. My assistant, Dr. Raeth, and I chose the simplest heterocyclic nucleus, the pyridine, and transformed it into about 700 new arsenic and iodine compounds. Expecting them to be very toxic, we were much surprised to find several of an unheard of tolerability when compared with the known arsenic and iodine compounds. This new biochemical principle, which we ascertained in animal experiments, caused me finally to select sodium-2-oxo-5-iodo-pyridine-N-acetate ("Uroselectan") for intravenous urography. This new relationship between chemical

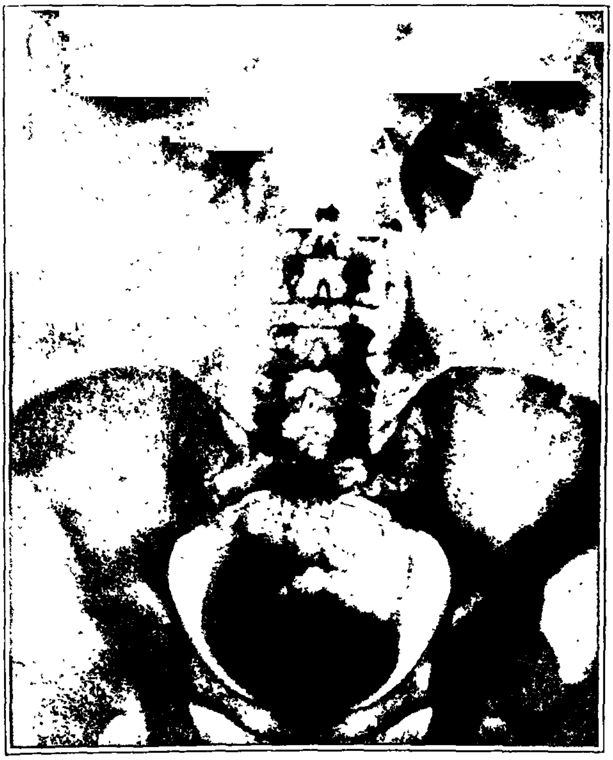

Fig. 6—Papillary carcinoma of urinary bladder extending from the left orifice to the internal sphincter, according to cystoscopic diagnosis, in woman, aged 62; 50 Gm. of substance injected. The left ureteral orifice cannot be seen. There was no indigo carmine excretion from left side; good blue from right. Intravenous pyelogram shows dilatation of left urinary tract, especially of juxtavesical and intravesical portions of the ureter. The denser shadow on the left than on the right normal side is due to partial obstruction at the left ureteral orifice.

structure and biologic action we published in the *Zeitschrift für angewandte Chemie.* Sodium-2-oxo-5-iodo-pyridine-N-acetate, in its present form, was made in 1927, long before Dr. Swick came to Germany. Its selection by me for the purpose of intravenous urography was not due to suggestions of Dr. Swick but was in answer to clinical principles which had been agreed on by Professor von Lichtenberg and me, before Professor von Lichtenberg's trip to America last year. Concerning priority, Hryntschak of Vienna in 1927 was the first to investigate selectan compounds for intravenous urography, including what is now known as sodium-2-oxo-5-iodo-pyridine-N-acetate. Hryntschak obtained but partial success. Professor Lichtwitz of Altona in 1929 in his investigation of the treatment of human infections by selectan neutral, which I had sent him, observed that this compound had another effect which concerned intravenous pyelography. But all these results were clinically negligible. After working with selectan neutral and other selectan compounds, in Professor von Lichtenberg's clinic, and obtaining disappointing results, final success was achieved when I selected sodium-2-oxo-5-iodo-pyridine-N-acetate for use. It was given by me to Dr. Swick, who had been appointed by Professor von Lichtenberg to try out the compounds that I would give him.

Dr. Moses Swick, New York: When I began my studies, as Professor Lichtwitz has pointed out, a substance synthesized by Professors Binz and Räth, having the formula m-methyl-5-iodo-pyridon ("Selectan Neutral") was being tested for coccus infections at his clinic in Altona, Germany. Studies on its excretion, and its iodine content, led to the idea of applying it for roentgenologic purposes. The encouraging results pointed to the possibilities of further development. Following a dose of 6 Gm. (one third of the calculated maximal dose), certain disturbing symptoms resulted. Some were headache, nausea, vomiting and general discomfort. Of particular interest was the occurrence of transient diplopia in two cases. This suggested the possibility of the methyl radical being the toxic factor. My experience with this substance brought out the need for a modification, possessing better tolerance, greater solubility, and a higher iodine content, so that a larger dose could be administered and a higher concentration of the excreted iodine component be obtained. This work had been carried out at the clinic of Professor Lichtwitz for seven months before conferences were held with Professor Binz. The full data concerning these conferences and other matters here discussed will be presented by me tomorrow before the Section on Urology. As a result of my first presentation of the needs to Professor Binz, he furnished me with a compound, which, because of its insolubility, had to be administered by mouth and gave no results. At the second conference, in which Professor Lichtwitz participated, the whole ground was gone over again. Professor Binz felt confident that our needs could be fulfilled. Thereafter I continued the investigations in the clinic of Professor von Lichtenberg. There again I tested "Selectan Neutral," the second substance, and a third furnished by Professor Binz, which also had to be given by mouth and was unsuccessful. Finally, Professor Binz gave me a substance of the selectan group, which had a sodium acetate radical substituted for the methyl (sodium-2-oxo-5-iodo-pyridine-N-acetate). This compound fulfilled the needs, and satisfactory urograms could now be obtained. Professor von Lichtenberg, who was in the United States at the time, was promptly informed of the results. These were reported by me in detail at the Urologic Congress in Munich in September, 1929. I am not a chemist but have interested myself along the chemical lines required by the theoretical side of my problem and the chemical examinations needed in the course of the clinical investigations.

Dr. Theodore Sokow, Kenosha, Wis.: The use of this new method necessitates changing one's conception in explaining and diagnosing roentgenograms. With the cystoscopic method, a forcibly dilated kidney pelvis is obtained, not corresponding to the anatomic conditions. With the intravenous method, the physiologic dynamic conditions of the kidney and ureters are observed. That explains why pictures taken at the moment of the kidney contraction may show the pelvis very small and the calices not at all. Only in the diastole is a perfect picture obtained Certain technical procedures may improve the results, as elevation of the pelvis of the patient and compression of the region of the lower ureters. In one of the latest articles, Dr. Hryntschak of Vienna is recommending the use of solution of pituitary to increase the concentration of the dye in the kidney and atropine to delay the excretion of the dye. It seems worth while to try these and other drugs for the same purpose. In my experience, sodium-2-oxo-5-iodo-pyridine-N-acetate has given very good results and few after-effects. About two months ago, at the annual convention of the German Roentgen Society in Berlin, different authors mentioned a new product, produced by another chemical concern in Germany. I was able to secure lately a small amount of this chemical, and used it in different cases with very satisfying results.

Dr. L. T. Le Wald, New York: Dr. Jaches has brought out two or three uses that seem to me very important. As I have had one case of implantation of both ureters into the sigmoid, similar to his case, and as I know of several cases at the Mayo Clinic, I would be interested to learn whether the rest of these cases could be examined and see whether dilatation of the ureters has occurred in the other cases in which there was exstrophy of the bladder. The second point relates to the possibility of misinterpretation, because one kidney didn't show function temporarily which might lead one into error. Dr. Jaches, however, has emphasized the fact that either repeating the test or roentgenographing the patient at a little later time shows that the kidney did function, thus avoiding erroneously diagnosing a single kidney because of this possibility of spasm interrupting the secretion. And then in case of horseshoe kidney, I think it is exceedingly valuable. Occasionally in a thin subject, at least in one case, I was able to see the shadow of the kidney going across the median line, but as a rule one would be in doubt in a case of that sort. In Dr. Jaches' case, the shadow was certainly very conclusive after the use of sodium-2-oxo-5-iodo-pyridine-N-acetate. I would like to ask Dr. Jaches if any alarming reactions have occurred. A urologist in New York told me that in his first case in which the injection was given through rubber tubing he had had some reaction and he did not give more than half the dose and then desisted from finishing the examination, saying that the patient had some dizziness and collapse, and he didn't feel safe in going on. I wish Dr. Jaches would say a word or two more about technic.

Dr. B. R. Kirklin, Rochester, Minn.: You might be interested to know of a little Scotch trick that we have employed at the Mayo Clinic. Dr. Braasch and his associates have been collecting the urine of the patients after they have received sodium-2-oxo-5-iodo-pyridine-N-acetate and sending it to the chemist, who has been able to recover approximately 65 per cent of the amount originally injected. I am informed by the chemist that the substance recovered in this way is a purer product than the original drug.

Dr. Leopold Jaches, New York: In 122 cases there have been no unpleasant reactions. What was the cause of the reaction in the case quoted by Dr. Le Wald, I do not know. It may be that this patient was an unsuitable subject. I suggest that this case be reported with all clinical data, so that more can be learned about all possible contraindications than is known today. I am glad to hear from Dr. Kirklin that at the Mayo Clinic the material was used over again. Dr. Swick has proposed the same thing to me but as yet I have not followed his suggestion. I made up my mind to keep out of the controversy regarding the origin of this matter. I would like, however, to say in connection with what has been stated concerning Dr. Hryntschak that a real practical success did not result from his studies. As Dr. Swick is much more familiar with this phase of the subject, he should be permitted to discuss it for me.

Dr. Moses Swick, New York: At the Urologic Congress in Munich in 1929, where I presented my paper, Dr. Hryntschak was present. He did not discuss the subject but in his article which appeared at that time in the *Zeitschrift für Urologie* in 1929 he said on page 904 that although he had succeeded two and one-half years before in obtaining useful pyelograms in a few cases, the method had by no means met the conditions set forth by him. He, however, expressed the hope of accomplishing his aims by continued investigations. I might add that he gave neither the name nor the chemical formula of any of the substances employed, but he mentioned three of them by number as 12, 27 and 48.

MALIGNANT CHORIONEPITHELIOMA UTERI *

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Tumors of the chorion have interested the profession for many years. Saenger[1] in 1888 described the symptoms and diagnosis, and Fränkel[2] and Marchand[3] in 1895 demonstrated that the chorionic epithelium gave rise to these growths. In 1910 Ewing[4] published his investigations on the prognosis of these growths based on a histologic study.

The difficulties of making a clinical and pathologic diagnosis of the diseases and the tumors of the chorion are great. The fact that under normal conditions syncytial wander cells are found in the decidua and the myometrium, and that some of the choriomas are composed of all the elements and others of only the epithelial cell elements of the trophoblast, are responsible for the difficulties in diagnosis.

Six cases of malignant chorionepitheliomas were observed in our clinic within a relatively short time. They were referred on account of severe uterine bleedings, while one case was referred for diagnosis (case 2). The pathologic, diagnostic and therapeutic observations made in these cases are herewith recorded.

Malignant chorionepithelioma is a tumor originating in the epithelium of the chorionic villi. Hence it occurs only in association with pregnancy and therefore appears during the child-bearing period of a woman's life. The new growth is always located in the genital tract, namely, the uterus, the uterine tubes, the ovaries or the abdomen, depending on intra-uterine, tubal, ovarian or abdominal pregnancy. Malignant chorionepithelioma develops from fetal instead of from maternal tissues, often in the earliest stages of pregnancy, and ultimately destroys the mother's life.

A diagnosis of malignant chorionepithelioma must be made when solid masses of syncytial and Langhans cells are found side by side with destruction of uterine tissues, invasion and erosion of blood vessels, and presence of extensive necrotic masses, pointing to rapid proliferation of tumor cells. The growth does not possess a stroma or a blood supply of its own.

Chorionepitheliomas may be typical, transitional and atypical. They may be primary or follow a simple or an invasive hydatid mole or placental polyp. Chorionic cells in the form of large syncytial wander cells may be found in the maternal tissues during the entire course of normal pregnancy. The trophoblast possesses all the cell elements, and even the invasive and destructive powers characteristic of malignant growths though they are entirely physiologic in nature.[5] It is obvious that the differential diagnosis of these diseases and conditions is perplexing and should rest on the pathologic and clinical observations.[6]

The pathology of these various lesions can be best studied by comparing the latter with the structure and maternal relations of the trophoblast. The primitive trophoblast is composed of all the elements of the chorionic villus; namely, syncytium, Langhans cells and a connective tissue core. The syncytium forms the thick outer layer. It contains many vacuoles which give it a spongy and reticulated appearance. The layer of Langhans cells is located beneath the syncytial cell layer. The connective tissue forms the central core. Uncoagulated blood derived from the maternal blood is contained in the vacuoles. Capillaries or blood vessels are not seen. Syncytial wander cells invade the underlying decidua during the entire period of pregnancy. The zone of the decidua adjacent to the blastocyst becomes destroyed and degenerated as the result of the invasive and destructive power inherent in the blastocyst and ascribed to the Langhans cells. The latter show an enormous proliferation and active mitosis which breaks up the maternal blood vessels, the decidua and the uterine glands until the young villi become attached to the maternal tissue, when the invasive and destructive activities of the fetal trophoblast cease. At the site of contact of the fetal and maternal tissue elements a fibrinous layer, Nitabuch's membrane, becomes interposed. It is an expression of a reaction of the maternal structures against fetal invasion.

The simple hydatid mole, also, contains all the elements of the chorionic villus. It probably appears during the earliest stages of chorionic development. The syncytium participates actively in the proliferation with the formation of many vacuoles. The layer of Langhans cells remains rather inactive and may be scarcely discernible. The connective tissue core is always present, though regression may be seen. Absence of this mesodermic layer means degeneration into a chorionepithelioma. The vacuoles form vascular lacunae. Fetal capillaries are absent. Mucous edema of the villi causes formation of vesicles, which have given the growth its name. A simple mole is never invasive and lacks the powers of destruction and metastasis. It usually terminates suddenly by becoming detached from the maternal structures and being expelled in toto. Where the mole comes in contact with the maternal tissue a fibrinous layer is interposed with a zone of plasma and round cells, leukocytes and fibroblasts.

The invasive hydatid mole, termed chorionadenoma destruens by Ewing, possesses all the characteristics of the simple mole. However, the molar villi dip down into the maternal tissues in continuity, causing destruction and cleavages in the uterine wall. Epithelial cell metastases are never seen locally or distantly. The cells possess only limited capacity for independent growth. Proliferation of the molar villi into the uterine blood vessels is marked without the occurrence of any destruction of vessel walls or invasion of the adjacent tissue. The invading villi are enclosed in a true leukocytic limiting wall with plasma cells and fibroblasts. Syncytial cells are not seen outside this fibrinous layer. Detachment of the mole from the maternal tissue and expulsion in toto are often seen. The growth is absolutely benign in its histologic character, as autonomous growth of cells has not been observed.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Assocition, Detroit, June 25, 1930.

[1] Saenger: Ueber Sarcoma Uteri, Zentralbl. f. Gynäk. **132**, 1889.

[2] Fränkel, E.: Maligne Tumoren des Chorionepithels, Samml. klin. Vortr. **180**, 1897.

[3] Marchand, E.: Ueber die sogenannten decidualen Geschwülste im Anschluss an normale Geburt, Abort, Blasenmole und Extrauterine Schwangerschaft, Monatschr. f. Geburtsh. u. Gynäk. **1**: 419, 513, 1895.

[4] Ewing, James: Chorioma: A Clinical and Pathological Study, Surg. Gynec. Obst. **10**: 366, 1910. Caturani, Michele: Hydatidiform Mole and Chorionepithelioma, Am. J. Obst. & Gynec. **75**: 591 (April) 1917. Rosenzweig, M.: Syncytial Endometritis and Syncytioma, ibid. **13**: 563 (May) 1927. Wolfe, S. A.: Chorionadenoma and Choriocarcinoma of Uterus, ibid. **17**: 826 (June) 1929.

[5] Teacher, J. H.: Chorio-Epithelioma Malignum, New System of Gynecology, Eden and Lockyear **2**: 555, 1917.

[6] Meyer, Robert: Beiträge zur Pathologie und Klinik des Chorionepithelioma uteri malignum, Ztschr. f. Geburtsh. u. Gynäk. **92**: 259, 1927.

The typical malignant chorionepithelioma is composed of both epithelial cell elements of the chorion. They assume embryologic morphologic characters and biologic activities. The cells form masses and columns with marked vacuolation and necrosis. One or the other cell type may predominate. The connective tissue core disappears entirely as a result of the proliferating activities of the epithelium. Mucous degeneration in the epithelial cells leads to the formation of vesicles. Fetal capillaries are absent. Syncytial wander cells are often seen in the maternal tissue.

The syncytial and Langhans cells are in active proliferation, have many mitotic figures and show marked anaplasia. The highest potential malignancy seems to be conferred by the presence and activity of Langhans cells. There is invasion by active penetration of the vascular sinuses and destruction of the adjacent tissue. Metastasis takes place by emboli in blood vessels locally and distantly. The growths and metastatic foci cause the formation of a zone of reaction of the maternal tissues against the invasive malignant cells. It is composed of round and plasma cells, leukocytes and fibroblasts.

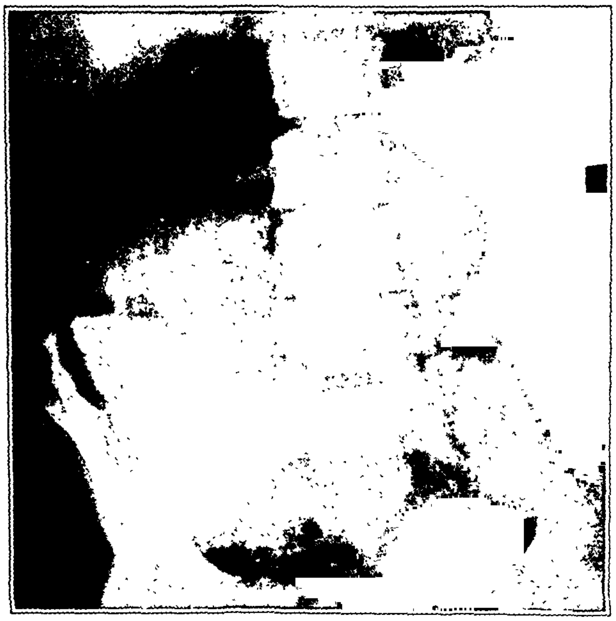

Fig. 1 (case 8).—Appearance of pelvis showing fetus in transverse position and an irregularity in uterine wall at upper right side.

A malignant chorionepithelioma never regresses and rapidly destroys the life of the host.

The atypical chorionepithelioma, or malignant syncytioma of Ewing, is composed only of syncytial cells which assume all the characters observed in the typical chorionepithelioma. The syncytial cells show autonomous growth, anaplasia and abnormal mitotic action with invasion, destruction and metastasis. However, definitely degenerative changes occur early and rapidly and contribute to a relatively benign course.

Ewing describes under the name of syncytial endometritis a condition characterized by the invasion of syncytial cells into the uterine walls. The cells are seen singly but in excessive infiltration. They are ultimate transformations of the syncytium, have reduced vitality, and seldom, if ever, develop a progressive tumor. Active external penetration of vascular sinuses, perivascular invasion from within and local or distant metastases are never seen. There appears to exist a simple hyperplasia of syncytial cells. The condition is benign and regression has been repeatedly observed after a simple curettage. The concomitant inflammatory leukocytic infiltration is a reaction of the maternal tissues to the foreign cells. Many cases of so-called endometritis post partum or abortum probably are instances of these syncytial hyperplasias.

The conclusion may be drawn that the simple and invasive moles are marked by the relative inability of the chorionic epithelium to rid itself from the connective tissue core of the villus to form independent epithelial growths. Hence the persistence of the mesoderm in the chorionic invasion constitutes a reliable index of relative benignancy. Whenever malignant qualifications develop in the chorionic epithelium, as invasion, destruction and capacity for metastases, then the mole ends, and with the disappearance of the connective tissue core the chorionepithelioma begins.

Lutein cysts of the ovary are observed in from 10 to 20 per cent of the diseases and new growths of the chorion. As soon as the mole has been expelled or the chorioma has been removed, the cysts regress as they do after the termination of a normal pregnancy.

Distant metastases occur in lung, vagina, brain, liver, kidney and spleen, arranged in order of frequency. Metastases appear as dark red or reddish brown thrombus-like formations. The color results from old or fresh hemorrhages in the tumor substance.

It is evident from the discussion that histologic examinations should be done on all tissues expelled or curetted after abortions, full term labors, and especially after expulsion of a mole. Microscopic examinations at repeated intervals may be indicated in cases in which suspicious tissues are found or uterine bleeding recurs. Rapid frozen sections from curetted material should be employed in doubtful cases. One should always remember that a negative histologic examination does not exclude the presence of a chorionepithelioma, especially if the growth has an intramural location and is inaccessible to the curet.

Spontaneous regression, according to Ewing,[4] after formation of metastases and incomplete removal, occurs only in the atypical chorionepithelioma and the simple and invasive hydatid moles but never in typical malignant chorionepitheliomas. According to the same author the syncytiomas contribute only 5 per cent to the total number of fatalities from choriomas. In such cases, hemorrhages or secondary infections usually are the direct cause of death.

SYMPTOMATOLOGY

Saenger[1] propounded the following eight factors in the clinical diagnosis: (1) a history of a preceding labor, abortion, or expulsion of a hydatid mole; (2) persistent hemorrhages from the uterus continuing after a curettage; (3) hemorrhagic putrid discharge and secondary infection following intra-uterine instrumentation; (4) progressive enlargement of the uterus; (5) rapidly progressing anemia and cachexia; (6) early metastases especially in the vagina and the lungs; (7) lung involvement which is probably present when dyspnea, cough and bloody expectoration appear, and (8) a rapid course of the disease terminating in death within from six to seven months.

Bimanual palpation reveals the enlarged uterus, often irregular because of the site of growth. The consistency is usually normal but may be soft, especially in unfavorable cases. If the cervical canal remains open after abortion, labor or expulsion of a mole, then a digital exploration of the uterine cavity should be done to determine absence of all tissues from the uterine cavity and the condition of the uterine wall. About 10 per cent of the cases of hydatid mole are followed by a chorionepithelioma. If one is in doubt about the invasive character of the growth after palpation or if an intramural growth exists, a vaginal hysterotomy should be performed. In a recent case of malignant chorionepithelioma the patient gave a history of uterine hemorrhages of about two months' duration and profuse menorrhagias for six months previously. The patient was a nullipara, 35 years of age. On examination the uterus had the size of a twenty weeks' pregnancy and the organ was rather firm in consistency. Fetal quickening was present but fetal heart sounds were not elicited. A roentgenogram of the pelvis revealed a fetus in transverse position in the lower uterine segment. The amniotic sac and placenta occupied an unusually large amount of space. Within twelve hours after admission to the hospital the patient expelled the fetus and membranes spontaneously. Examination of these did not show anything abnormal. The uterus did not undergo any appreciable involution within ten days and a digital examination at this time revealed a growth in the posterior upper wall of the uterus. Examination of a frozen section of tissues removed with the curet showed malignant chorionepithelioma. An abdominal panhysterectomy was immediately performed (figs. 1, 2 and 3). Ponzian[7] used hysterography after the injection of iodized oil to determine the presence of a chorioma in the uterine cavity.

The danger of forcing tumor tissue into the abdominal cavity through the uterine tubes or the weakened uterine wall is great and hence such diagnostic measures should not be recommended.

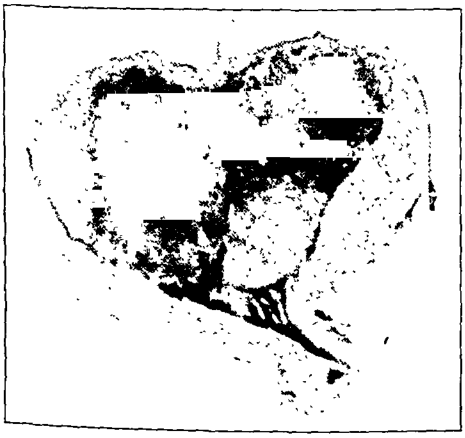

Fig. 2 (case 8).—Typical chorionepithelioma.

Aschheim[8] states that the urine of patients with hydatid moles or chorionepitheliomas gives a pregnancy reaction in mice about twelve times stronger than that obtained from a two months' gestation. The serum of such patients also is not lytic to chorionic epithelium, while serum of normal pregnant mothers is lytic according to Fränkl. Since these biologic tests have been simplified and are easy of execution, it would seem that the reactions are a great aid in the diagnosis of choriomas.

The differential diagnoses comprise: hydatid mole and placental polyps, *either simple or invasive;* endometritis post abortum and post partum; uterine carcinoma and sarcoma; bleeding uterine polyps, and adenomyoma uteri.

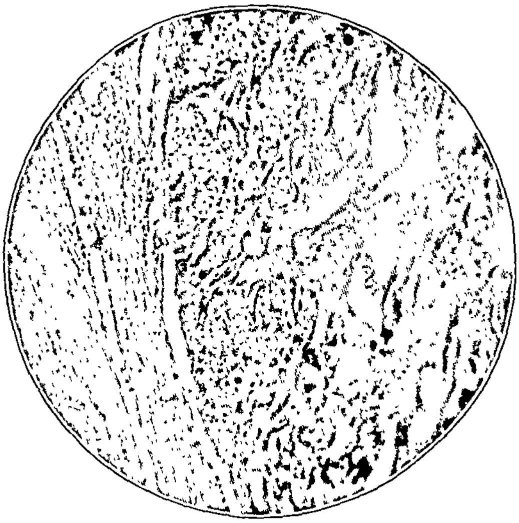

Fig. 3 (case 8).—Typical chorionepithelioma sharply demarcated from myometrium with leukocytic infiltration.

The treatment should be radical if a histologic diagnosis of malignant chorionepithelioma or malignant syncytioma has been made. Even if metastases should be found, hysterectomy may still be done, as regression of metastases has been observed in all choriomas. The syncytial endometritis, if occurring in young women, should be subjected to careful curettage. Should the hemorrhages recur after the curettage, hysterectomy or intra-uterine radium insertions are advisable.[9] Individual problems may present themselves in each case and should be treated accordingly. In general it may be stated that, if conservative measures do not suffice in syncytial endometritis, hysterectomy must be done.

In late years quite a number of cases of malignant choriomas have been reported that were successfully subjected to irradiation.

In 1917 a patient in the sixteenth week of pregnancy entered the clinic on account of severe hemorrhages from the right kidney. A diagnosis of a malignant tumor of unknown type of the right kidney was made. On account of the anemic condition of the patient and the pregnancy, the kidney was treated with filtered x-rays and the hemorrhages ceased. About a month later the uterine contents were suddenly expelled. Microscopic examination revealed a typical malignant chorionepithelioma. Radium was inserted within the uterus and heavy filtered x-rays were applied. The patient is well at the present time. Similar cases have been reported by Naujoks,[10] Gordon,[11] Szathmary,[12]

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[7] Ponzian, Antonio: La diagnosi radiologica della mola vesiculare, Atti Soc. Ital. ostetr. **26:** 461, 1928.

[8] Aschheim, S.: The Early Diagnosis of Pregnancy, Chorionepithelioma and Hydatidiform Mole, Am. J. Obst. & Gynec. **19:** 335 (March) 1930.

[9] Rosenzweig (footnote 4).

[10] Naujoks, H.: Heilung eines Chorionepithelioma malignum durch Roentgenstrahlen, Monatsschr. Geburtsh. u. Gynäk. **58:** 189 (July) 1922.

[11] Gordon, O. A.: The Treatment of Hydatidiform Mole and Chorionepithelioma, Surg. Gynec. Obst. **36:** 242 (Feb.) 1923.

[12] Szathmary, Zoltan: Ueber das Chorionepitheliom, Orvosi Hetil. **70:** 505, 1926 (Ra).

Liebe,[13] Klein [14] and others. The epithelial tumor cells of choriomas are of a highly embryonic, anaplastic and undifferentiated character and should be very radiosensitive. Therefore radiation therapy should be applied, especially to patients who are poor surgical risks.

In our cases, with one exception, prophylactic radiations were used. This may explain the favorable outcome of the cases. One patient has been well thirteen years and another one two years, after treatment with radium and x-rays. Of five patients surviving operation, four were given x-rays after operation. One has been well for three years, one for two years, one for one year and one for six months. One patient is well one year with operation only. One patient survived the operation only a few days. She was septic when the operation was undertaken. One case of recurrence with brain metastases after hysterectomy was treated unsuccessfully with short wave x-rays. It is generally assumed that absence of recurrence within one year after treatment should be interpreted as an absolute cure.

CONCLUSIONS

1. All tissues expelled during an abortion, a full term labor or an expulsion of a mole should be examined microscopically to exclude disease or new growth of the chorion. A hysterotomy and biopsy should be done if curettage is negative and the presence of a chorioma is suspected or recurrent bleeding is present.
2. The prognosis and indications of treatment can be made with relative safety from the histologic examination. Absence of the connective tissue core means malignant chorioma.
3. The treatment of choice of typical malignant chorionepithelioma is hysterectomy, even if metastases are present, as the latter have been known to regress following removal of the primary growth.
4. It appears that radiation therapy in combination with surgery may improve the prognosis of surgical treatment. However, the number of cases reported in the literature as successfully treated with irradiation is too small to warrant any positive conclusions.
5. Careful examinations and early diagnoses are the only criterions for a successful therapy of the highly malignant tumors of the chorion.

REPORT OF CASES

Case 1.—Mrs. McK., aged 32, sextigravida and quintipara, admitted to St. Mary's Hospital, Sept. 21, 1918, had had hemorrhages from the right kidney three months previously. A diagnosis of malignant tumor of the right kidney was made from the pyelogram. Because of the pregnancy it was treated with high voltage roentgen therapy, which arrested the bleeding.

September 23, a fetus with membranes intact was expelled spontaneously. Microscopic examination revealed a typical malignant chorionepithelioma. The kidney tumor was then considered a metastasis. Radiation therapy was advised and 2,040 mg. element hours of radium filtered with 2 mm. of brass was given within the uterus and a 150 per cent erythema dose of x-rays was applied to the center of the pelvis through suprapubic and sacral fields.

The patient has remained well.

Case 2.—Mrs. E. S., aged 32, primigravida, primipara, seen in consultation, April 28, 1926, had an amenorrhea from November, 1925, until Feb. 14, 1926, when uterine hemorrhages occurred. These stopped while the patient was kept in bed at absolute rest but immediately reappeared on her arising. April 7 a mole was expelled. A microscopic examination was not made.

The hemorrhages continued and within two weeks bimanual examination revealed large masses of unknown nature in both parametria. April 28 a panhysterectomy was done. The ovaries were the size of large oranges. Microscopic examination revealed a typical chorionepithelioma. The patient died from sepsis and peritonitis, May 16.

Case 3.—Mrs. B. O., aged 20, primigravida, nullipara, was referred from the Cook County Hospital to Mercy Hospital for radiation therapy of a typical chorionepithelioma malignum with extensive metastases in the vagina. She gave a history of amenorrhea of two months' duration since Aug. 6, 1927, followed by severe metrorrhagia, which was still existent on admission. She had marked vomiting of pregnancy. A mole was expelled, Jan. 15, 1928, which was followed by pyrexia. January 22, extensive invasive and ulcerative growths were found in the left vaginal wall and parametrium. Microscopic examination of tissues revealed a typical malignant chorionepithelioma.

The treatment consisted in the intra-uterine insertion of 2,400 mg. element hours of radium filtered with 2 mm. of brass and the application of 800 r units of x-rays each to a suprapubic and a sacral field from January 31 to February 14.

The patient recovered anatomically and has remained well to the present time.

Case 4.—Mrs. S. M., aged 22, secundigravida, secundipara, admitted from the Cook County Hospital for radiation treatment of brain metastases due to a recurrent chorionepithelioma, Feb. 10, 1928, had had uterine hemorrhages for six months prior to a panhysterectomy performed for the hemorrhages in September, 1927. Seven weeks later intense headaches developed accompanied by a left-sided paralysis, and in December, 1927, a tumor was discovered in the pelvis. A biopsy was then performed which revealed a typical malignant chorionepithelioma. X-ray doses of 800 r units each were applied to the brain and to the pelvic tumor. However, the patient succumbed within three months.

Case 5.—Mrs. A. C., aged 39, was admitted to the service of Dr. O'Donohue, Sept. 9, 1928, stating that she had had an abortion in March, 1926, which was followed by a continuous bleeding from the uterus. A curettage followed by the intra-uterine insertion of radium was made in September, 1927. A microscopic examination was not made. In May, 1928, persistent uterine hemorrhages, malodorous discharge and pelvic pain appeared. A panhysterectomy was performed, September 12. The histologic examination revealed a typical malignant chorionepithelioma. Short wave x-rays were applied to the pelvis from October 2 to 15, 800 r units being given to the midpelvic region. The patient has remained well.

Case 6.—Mrs. F. G., aged 18, primigravida, nullipara, admitted, May 13, 1929, had had an amenorrhea for three months and uterine bleeding for the last four days. Examination revealed an open cervix, an enlarged uterus, the size of an eight weeks' pregnancy, and a protrusion from the cervix of dark bluish grapelike masses. Biopsy revealed a malignant chorionepithelioma. A panhysterectomy was done, May 14, and a dose of 800 r units of short wave x-rays was applied to the midpelvis from June 1 to June 29. The patient has remained well.

Case 7.—Mrs. C. A., aged 21, primigravida, nullipara, admitted to the service of Dr. Vaughn, Sept. 6, 1929, had had an amenorrhea for five months and on September 12 a mass was expelled spontaneously from the uterus, which was followed by a continuous bleeding. A curettage was done, September 16, but the bleeding continued.

The patient reentered the hospital, October 7. A biopsy revealed a typical chorionepithelioma, and a panhysterectomy was immediately performed. The patient is well at the present time.

Case 8.—Mrs. M. L., aged 33, primigravida, nullipara, admitted, Nov. 7, 1929, had had hypermenorrhea for four months, followed by profuse and continuous metrorrhagia for the past two months. A roentgenogram revealed a fetus in transverse position in the lower uterine segment and an unusually large area of the supposedly amniotic sac (fig. 1). A spontaneous abortion occurred within twelve hours, a fetus of apparently three months size and a normal placenta being expelled. The uterus did not undergo involution. An examination, November 18, elicited an open cervical canal and a soft mass in the right posterior uterine wall. An immediate diagnostic curettage was made. Examination of the frozen section revealed a typical *chorionepithelioma malignum* (figs. 2 and 3). A panhysterectomy was immediately performed. Short wave x-rays were applied to the pelvis, the dose being 800 r units in the midpelvis. The patient has remained well so far.

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[13] Liebe, W.: Verschleppung von Blasenmolenteilen in die Vagina, Ztschr. f. Geburtsh. & Gynäk. **90**: 294, 1926.

[14] Klein, Paul: Ueber das Chorionepithelioma malignum der Tube nach Extrauteringravidität, Arch. f. Gynäk. **129**: 662, 1927.

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ABSTRACT OF DISCUSSION

Dr. Bernhard Friedlander, Detroit: This paper shows the difficulties that exist in making a clinical and pathologic diagnosis of tumors of the chorion. Of 35,000 surgical specimens examined at Bellevue Hospital, only one chorionepithelioma was found. The severity of this growth depends on whether the Langhans cells or the syncytial element predominates. The Langhans type is slow growing, while the syncytial type is rapidly growing with an early tendency to metastasize. The histology of chorionepithelioma is well established by the work of Marchand, L. Fraenkel and others; nothing of importance has been added. There still exists a great deal of confusion in the biologic problem of this malignant growth and of hydatidiform mole. For a long time it was known that in hydatidiform mole and chorionepithelioma there is a formation of lutein cysts (pseudocorpora lutea or corpora lutea atretica) which must be due to some substance that has an action on the ovaries. Zondek and Aschheim, Evans and Smith have shown this formation of lutein material to take place after the implantation of the anterior pituitary and ovarian substance in animals. Murati and Adachi could produce the same results with placenta. Karl Ehrhardt found in one case of chorionepithelioma 260,000 mice units and in another as high as 520,000 mice units in 1 liter of urine. In a normal pregnancy there are no more than 8,000 to 10,000 mice units to the liter of urine. So it was evident that the formation of lutein cysts in hydatidiform mole and chorionepithelioma was due to the action of the hormone of the anterior pituitary body. Oscar Frankl demonstrated that the resistance of the mother's organism plays a great part in the formation of chorionepithelioma. He has shown that the serum of a normal pregnant woman is able to destroy fetal tissue from placenta, liver or kidney, while the serum of a woman who suffers from chorionepithelioma does not possess this lytic action. He concluded from this that the reason for the formation of chorionepithelioma must be found in the blood of the pregnant woman who shows an absence of syncytiolytic properties of the serum. He also believes that the spontaneous cures are due to a recovery of the syncytiolytic properties of the woman's serum.

Dr. Emil Novak, Baltimore: There is no field in gynecologic pathology in which mistakes are more readily made than in this one. There are several reasons for this. The tissue that makes up a chorionepithelioma differs little in its microscopic appearance from the tissue found in normal pregnancy and in the benign hydatidiform mole. The characteristic tissue, of course, consists chiefly of Langhans' cells and syncytial cells. It is true that in some cases of chorionepithelioma one finds definite evidence of anaplasia, such as mitoses, but, in the main, the value of this criterion is much less in this group of tumor than almost any other group. The normal pregnancy picture, that seen with the benign hydatidiform mole, and the malignant picture of chorionepithelioma, represent a gradation analogous to that seen between normal skin, benign skin papilloma and malignant epithelioma. Difficulty in diagnosis occurs from the fact that the trophoblast is an invasive tissue even in normal pregnancy, its cells often pushing into the musculature and into the veins. Moreover, there is a sort of physiologic metastasis, so that particles of trophoblast are transported to distant organs, especially the lungs. For this reason, one must in some cases be influenced largely by the degree of invasiveness and the presence of evidences of destruction of the normal musculature of the uterus. In most cases of chorionepithelioma the normal villous pattern is lost, although this is not an infallible criterion. There have been many efforts made at classifying these trophoblastic lesions, the best one probably being that of Ewing, who distinguishes a sort of intermediate group between the benign hydatidiform mole and the chorionepithelioma. This intermediate type he designates as chorio-adenoma destruens. The logic of this has never appealed to me because this type of growth is really malignant. It recurs after removal, it invades adjoining tissue, it metastasizes, it does everything that a malignant tumor does, though to a somewhat lesser extent than the chorionepithelioma. Whether it can be recognized in the individual section or not, every tumor is benign or malignant, and one ought to be content to recognize only two chief forms of choriomatous tumor, the chorioma malignum and the chorioma benignum. The first of these is what is commonly called a chorionepithelioma and the second the benign hydatidiform mole.

Dr. H. C. Mack, Detroit: Dr. Schmitz has referred to the Aschheim-Zondek reaction in chorionepithelioma and hydatidiform mole. Two cases of chorionepithelioma which we followed by means of this reaction gave us some valuable information regarding diagnosis and prognosis. One case developed following hydatidiform mole at four months. Panhysterectomy was performed. A small nodule infiltrated the myometrium. The Aschheim-Zondek reaction was positive before operation, remained positive three weeks after operation, and became negative after the patient had had several courses of roentgen and radium therapy. The second case was one of chorionepithelioma developing in a patient who had had nine successive hydatidiform moles; in this, her tenth pregnancy, she developed chorionepithelioma. The Aschheim-Zondek reaction was positive one month before the primary operation and remained positive after operation for four months, in spite of roentgen and radium therapy following panhysterectomy. Two months later the patient developed metastases in the vagina. These metastases were removed but the Aschheim-Zondek reaction remained positive. The patient left the city and we do not know what has happened. We have made studies of the urine of patients with hydatidiform mole and chorionepithelioma. We found that there was a high potency of anterior pituitary hormone. In hydatidiform mole a dilution of 1 : 5 gave a very strong positive reaction; in chorionepithelioma a dilution of 1 : 11. We made extracts from the tumor tissue of chorionepithelioma and obtained positive reactions, in a dilution of 1 : 14. Tumor implants also gave positive reactions. We have under observation a patient with a hydatidiform mole who was curetted after expulsion of the mole four months ago. The urine of this patient is still giving strong positive reactions in spite of a subsequent curettage. The uterus is still enlarged and soft; the menses are regular but somewhat abnormal; there is slight spotting. We are somewhat hesitant about saying that this patient has chorionepithelioma, but we believe there is some evidence that there is still proliferating chorionic tissue in utero.

Dr. Henry Schmitz, Chicago: The diagnosis should be based on the pathologic and clinical observations, especially recurrent severe hemorrhage following a supposed abortion or full term labor. The Aschheim-Zondek reaction will be of great assistance. Persistence of reaction may mean mole or chorionepithelioma. The reason I found so many patients with malignant chorionepithelioma was that these patients were referred for uterine hemorrhages possibly of malignant origin. There were only three patients who first sought help for bleeding of abnormal character. The others had been treated somewhere else, sometimes months before, and no diagnosis was made until they were sent to me on account of a suspected malignant condition. Otherwise, I am certain, I would not have seen so many cases. Hydatidiform mole, placental polyps and other conditions simulating malignant chorionepithelioma were not considered as it was my desire to discuss the malignant tumors of the chorion and the possibility of obtaining gratifying results of treatment especially with a combination of surgery and radiation therapy.

HYPERPLASTIC TUBERCULOSIS OF THE DUODENUM AND TERMINAL ILEUM

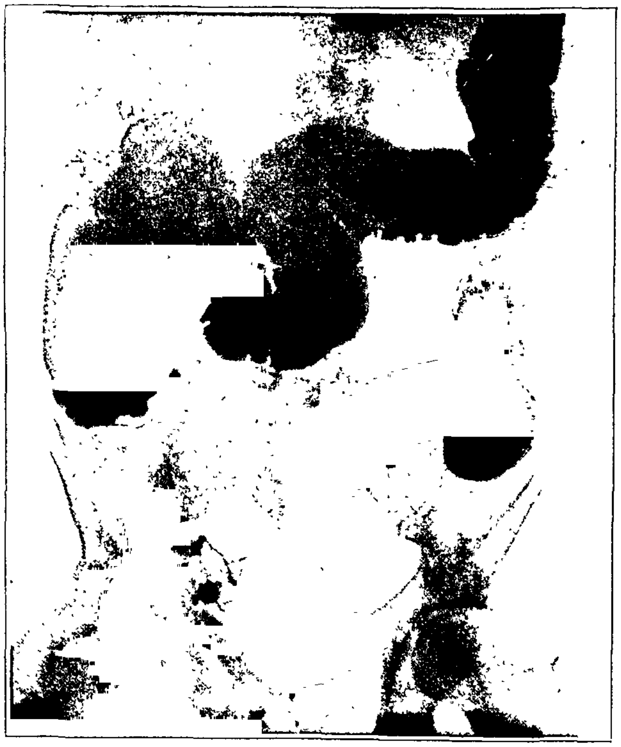
REPORT OF A CASE *

JOHN DAY GARVIN, M.D.
PITTSBURGH

Hyperplastic tuberculosis of the terminal ileum alone, without coexistent involvement of the cecum, is extremely rare. Involvement of the duodenum in the same process has never hitherto been reported.

REPORT OF CASE

A man, aged 24, seen for the first time through the courtesy of Dr. R. R. Snowden, Oct. 19, 1927, complained of diarrhea which had had its onset in February, 1925, there being at that time from six to ten bowel movements a day with no blood and no griping. After a few weeks this subsided; following dietary changes, he felt better, the stools became formed, and the number of movements was reduced to one a day. His weight then reached 154 pounds (70 Kg.). A year later (1926) he had, once a month, a recurrence of his diarrhea, lasting from two to three days, most of them abating spontaneously. At times he would have a temperature of 102 F. and a leukocytosis of as high as 14,000. Three weeks prior to the time I first saw him, he had had such an attack; the bowel movements were quite frequent and of a bad odor, but there was no blood or griping.



Hypertrophic tuberculosis of terminal ileum.

The physical examination was essentially negative when done by me (and had been persistently so for the two years previous when under Dr. Snowden's care, with the exceptions just noted) save for a complete indirect inguinal hernia on the right and a generalized abdominal tenderness of mild degree. He weighed then 127 pounds (57.7 Kg.).

Dr. George W. Grier had roentgenographed his stomach previously and had noted persistent duodenal deformity, which he attributed to a probable ulcer. In the light of subsequent events, this observation was quite significant. Stereoroentgenograms and repeated physical examinations of the chest were all negative. Fluoroscopic and roentgenographic examinations of the colon were done by me four times over a period of two years and each had been quite normal. At one time a careful stool examination showed the presence of many *Endameba nana* organisms, usually nonpathogenic. Nevertheless, acetarsone and chiniofon were given, at various times, without any appreciable improvement.

Repeated proctoscopic examinations were negative. Throughout all this time, dyspeptic symptoms, described by the patient as sour gas, belching, soreness in the pit of the stomach and gas pains in the pit of the stomach when he had diarrhea, were prominent. The blood Wassermann reaction was negative, many sputum tests were negative and the gastric test meal showed a total acidity of 20 and a free hydrochloric acid value of 10. Urinalysis was negative.

Aug. 16, 1929, he appeared, definitely emaciated, and complained of being "bloated." His weight was 123 pounds (56 Kg.). At this time another roentgen examination of the colon was done. The colon itself appeared quite normal, as it had before. However, when the barium had flowed into the terminal ileum, that part did not exhibit any spasticity or filling and emptying phenomena but held the medium evenly and to the palpating hand presented a definite, infiltrated, thickened wall. The remark of an assisting nurse, "It feels just like a rope," was most descriptive, as shown in the illustration. The diagnosis of hyperplastic tuberculosis of the terminal ileum was made and operation advised. The patient refused.

When seen again, September 30, he was definitely worse and complained bitterly of heartburn, nausea and vomiting. Roentgen examination of the stomach at this time showed a large, obstructed organ, with retention 3, after six hours. Operation was urged in order to relieve the retention, no diagnosis other than "lesion at the outlet" being made.

October 7, he was operated on by Drs. W. A. Dearth and H. E. DeWalt, who explored the right lower quadrant before directing attention to the stomach. The terminal ileum was markedly thickened for a distance of about 15 cm. from the cecum and the serosa was studded with tubercles, giving it the "sandpaper appearance suggestive of tuberculosis" noted by Erdman.[1] The cecum was uninvolved. The stomach was normal aside from some hypertrophy but the duodenum was markedly thickened and studded with tubercles much the same as was the ileum. Practically complete obstruction of the pylorus had resulted. There was no other evidence of involvement throughout the abdomen. There were no enlarged glands and the terminal ileum was freely movable. Because of the very poor condition of the patient, surgery other than gastro-enterostomy to relieve the obstruction was not attempted. The patient's family was informed of the conditions found and told that resection of the affected bowel would ultimately be necessary.

His convalescence was uneventful and on Jan. 3, 1930, his weight was 147 pounds (67 Kg.) and he was feeling very well. He was having but little diarrhea and no dyspepsia of any kind. February 11, he felt "dull and heavy in the stomach," was having some diarrhea, and his weight had dropped to 144¾ pounds (65.8 Kg.). Since that time there has been no improvement in his condition, the diarrhea and bloating have become a bit more noticeable, and his weight, May 9, was 134½ pounds (60.7 Kg.). Physical examination on this last date revealed a readily palpable, elongated tumor in the right lower quadrant. This could not be palpated at any time before the operation.

COMMENT

Tuberculosis of the intestine exists in four forms, according to the French classification:[1] 1. The common ulcerating type. 2. The stenosing or cicatricial type, resulting from contraction of the healed ulcer. 3. The enteroperitoneal type, combining ulceration, hyperplasia and involvement of the adjacent peritoneum, mesentery and lymph nodes. 4. Chronic hyperplastic tuberculosis. According to Lemon,[2] but two types are usually distinguished: 1. The ulcerating type, practically always secondary to pulmonary tuberculosis and a not uncommon complication in tuberculous patients. 2. The hypertrophic type, which was first described by Hartmann and Pilliet[3] in 1891 and is evidence of the successful reaction of the body against organisms that are either few in number or attenuated in virulence. It is a manifestation of the natural ability of the body to care for infection and has been described as the real surgical tuberculosis.[2] Infection probably occurs through the blood or lymph stream and the lesion takes the form of a localized hyperplastic structure, formative rather than destructive.

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* Read before the Section on Radiology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[1] Erdman, Seward: Hyperplastic Tuberculosis of the Intestines, Ann. Surg. 71: 637-647 (May) 1920.

The most frequent seat of the disease is the ileocecal region, the tumor mass often attaining great proportions and resembling, macroscopically, carcinoma. Occasionally the rectum is involved. Involvement of the small intestine alone is rare, Lartigau[4] reporting but two cases. Masson and McIndoe[5] reported four others from the literature, their case being the seventh on record in which the process was confined to the ileum. This case is, therefore, the eighth in which the ileum is involved to the exclusion of the cecum and the first in which involvement of the duodenum is also present.

The most striking feature of the disease is the extremely thickened intestinal wall. Lartigau in describing it says "The wall of the intestine feels firm and is of a whitish or grayish color, occasionally studded with yellow points owing to the presence of caseous tubercles." He also speaks of narrowing of the lumen as being almost constant, the stenosis being produced, in such a case, by hyperplasia of the tissues of the wall. In this case the effect of the stenosis was noted more in the duodenum than in the ileum at the time of exploration. Ulcers are rarely absent in all portions of the mucosa, even though they are not at first apparent. The furred edge of the bowel, as noted in the roentgenogram, is probably caused by ulceration. The rises in temperature and the occasional leukocytosis as noted in the patient's history probably resulted from this factor also. Polypoid and papillomatous formations are often seen.

It is a disease of long duration. The chronicity and the low grade of inflammation are believed by Masson and McIndoe to be due "either to an attenuated bacillus" (as noted by Lemon) "or to one of low virulence elaborating small quantities of exotoxin sufficient only to produce proliferation and not necrosis."

Regarding the etiologic factors, Lartigau says that "the whole subject seems to be wrapped in a certain amount of obscurity." The fact that pulmonary tuberculosis is usually absent or that when it is present it is as a secondary affair was noted by the earliest commentators on the subject. Lartigau believes it to be primarily intestinal in origin. This recalls the statement of von Bering that the tubercle bacillus may be ingested as well as inspired.

SYMPTOMATOLOGY

Symptoms are somewhat indefinite. The earliest are usually dyspepsia, nausea and occasionally vomiting. Abdominal pain is often present. Diarrhea and constipation often alternate. In one of Pilliet's cases, diarrhea was persistent. The abdomen is often tympanitic and there is usually definite tenderness in the right lower quadrant. Koenig[6] summarizes the symptoms as "ballooning of the intestine, visible peristalsis, clapotage, borborygmi accompanying the colic and the appearance of an elongated tumefaction." This case has not progressed to the point at which such obstructive phenomena appear.

TREATMENT

Radical resection of the affected segment and intestinal anastomosis afford the only recourse. W. J. Mayo[7] reports several cases of ileocecal tuberculosis in which, anastomosis having been done preliminary to bowel resection, the patients apparently obtained complete relief, obviating the necessity of later resecting the affected segment of bowel.

That resection could not be done and subsequent microscopic evidence obtained in this case is unfortunate and renders my diagnosis vulnerable. However, I shall hope to present this later when and if the patient consents to the bowel resection.

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ABSTRACT OF DISCUSSION

Dr. Lawrence Reynolds, Detroit: Dr. Garvin has given an interesting discussion of a rather unusual type of tuberculosis. Tuberculosis in the cecum and ascending colon and other parts of the large bowel is not infrequent in tuberculosis sanatoriums or even in office practice. Tuberculosis of the duodenum, on the other hand, is an extremely rare condition apparently and, if I judge correctly, Dr. Garvin believes this to be the first reported case. There have been a few other cases reported. Cohen reported a case in the *Medical Journal and Record* in 1928 in a boy, aged 15 years, who had symptoms for a long time simulating appendicitis. Operation was refused. The patient was seen again after nearly a year and a roentgen examination was made. In addition to the clinical signs in the right lower quadrant, the boy showed definite evidence of gastric pyloric obstruction, but the type could not be determined from the roentgen examination. When exploratory operation was made, a chronically inflamed appendix was found which was then interpreted as being tuberculous, as was also the obstructive lesion at the pylorus. It was impossible to resect the duodenum, but the glands about the duodenum and some of the tissue removed showed definite evidence of caseous tubercles, so that the diagnosis was determined entirely from glands taken in the proximity of the lesions, which parallels more or less the condition exhibited in Dr. Garvin's case. This patient a year afterward was well and without evidence of pulmonary tuberculosis. One other case that I found in the literature was reported by Buckley in the *U. S. Veterans' Bureau Medical Bulletin* in 1928. This patient was a Negro, aged 26, who had an extensive bilateral pulmonary tuberculosis, with evidence of intestinal tuberculosis. At autopsy a definite tuberculosis of the duodenum was found. The cases, however, are extremely rare. I believe that Howell, in making an analysis of 116 or 119 autopsies, found only 5 to present tuberculosis of the duodenum. The diagnosis of intestinal tuberculosis from a roentgenologic standpoint is of extreme interest. Dr. Garvin's case of tuberculosis of the duodenum will undoubtedly stimulate others to search for it, because, while it is infrequent, it must be a little more common than one is apt to think.

Dr. L. T. Le Wald, New York: I have had one case of primary tuberculosis of the cecum. That is a point that ought to be emphasized. As I understand it, in Dr. Garvin's case there was no pulmonary lesion. My patient was a man who had had his appendix removed, and it shows the value of routine examination of every removed appendix because the pathologist immediately returned a diagnosis of tuberculosis of the appendix.

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[2] Lemon, W. S.: Intestinal Tuberculosis: III. Clinical Studies Relating to Diagnosis, Tr. Nat. Tuberculosis A., 1925, pp. 186-199.

[3] Hartmann, Henri; and Pilliet, A. H.: Note sur une variété de typhlite tuberculeuse simulant les cancers de la région, Bull. Soc. anat. de Paris **66**: 471-476, 1891.

[4] Lartigau, A. J.: A Study of Chronic Hyperplastic Tuberculosis of the Intestine, with Report of a Case, J. Exper. Med. **6**: 23-51, 1901.

[5] Masson, J. C., and McIndoe, A. H.: Right Paraduodenal Hernia and Isolated Hyperplastic Tuberculous Obstruction, Surg. Gynec. Obst. **50**: 29-39 (Jan.) 1930.

[6] Koenig, F.: Die stricturirende Tuberculose der Darmes und ihre Behandlung, Deutsche Ztschr. f. Chir. **36**: 65-81, 1892.

[7] Mayo, W. J.: Personal communication to the author.

Lawrason Brown's work had just come out and I thought I would see if I could demonstrate whether the patient had tuberculosis of the cecum or not. He responded to the criteria that Brown and Sampson have given and Dr. Reynolds has just mentioned and as Pirie first observed: namely, the lack of filling of the cecum. The diagnosis was confirmed also by a barium enema, which showed rapid emptying of the cecum, so that I was able then to say that there was an area involving the cecum and extending up the ascending colon for a distance of perhaps 2 inches. With that definite knowledge, the surgeon, Dr. Downes, who had taken out the appendix, operated again and did a resection, putting the ileum into the transverse colon. The man made a perfect recovery and I watched him and roentgenographed him again for a period of about four years. He remained absolutely cured. It is now probably eight years and, as far as I know, he has had no further evidence of tuberculosis either in his digestive tract or in his lungs. I feel that this point of primary tuberculosis in the digestive tract should be stressed.

Dr. John Day Garvin, Pittsburgh: I forgot to say that Dr. Grier roentgenographed this young man about two years before I got him and noted a deformed duodenum and made a diagnosis of probable ulcer. There was nothing clinically to go with it and I didn't bear down very heavily. In the light of subsequent events, Dr. Grier's diagnosis was significant. I do not have the films to show because in the meantime Dr. Grier cleaned out his back films. I would like to emphasize and reemphasize, if I might, the fact that we are not talking about the ulcerative types of tuberculosis. This is a chronic hyperplastic type of tuberculosis of which, as I say, there are but eight cases reported. There may be some ulceration. Hardinghouse says there is only it isn't apparent. The big fact is hyperplasia, thickening of the wall and stenosis of the lumen.

TRICHINOSIS AND ITS OCULAR MANIFESTATIONS *

LELAND F. CARTER, M.D.

DETROIT

The observations of the ophthalmologist are of invaluable aid in the diagnosis, treatment and prognosis of many systemic and neurologic diseases. This is particularly true in regard to examination of the eyegrounds and the perimetric fields. Although he could never hope to attain this enviable degree of diagnostic precision by external examination of the eye, certainly there are times when the external appearance of the eye and its adnexa will present some of the first evidences of a grave disorder.

In this category falls trichinosis, a most interesting parasitic disease which probably presents itself for diagnosis not infrequently. Because of its varied symptomatology trichinosis is, unless by chance, almost as frequently undiagnosed. This is evidenced by the comparatively few cases reported in the literature as against the observations of H. U. Williams,[1] who in 505 autopsies in which the disease had not previously been suspected found 5.34 per cent of trichinosis. That the ophthalmologist may in a measure alter these statistics it is hoped will be brought out in this paper.

Of the ocular signs and symptoms of trichinosis, by far the most spectacular and characteristic is that of chemosis of the bulbar conjunctiva. It is most singular that this striking ocular sign has heretofore been so inadequately emphasized. It presents a picture not likely to be confused with any other. Occurring bilaterally as a rule, in the first few days of the disease there is a chemosis of the bulbar conjunctiva of a pale lemon jelly appearance with only slight inflammatory reaction. The chemosis is limited to the conjunctiva overlying the external and internal rectus muscles, gradually fading out to the limbus. This pathologic picture is undoubtedly brought about by the early invasion of the rectus muscles by the trichinella parasite. In ten or more cases that I have seen, this sign was prominent in all but one case. Generally speaking, this incidence of occurrence is much too high since most of the cases were seen in an eye infirmary. It may, however, be conservatively conjectured that this characteristic conjunctival reaction can be seen in 50 per cent of the cases. Late in the course of the disease the percentage will be much less, since the chemosis often lasts but a week and has become absorbed at the stage of maximal involvement of the skeletal musculature. The mere presence of chemosis of the conjunctiva does not alone justify the diagnosis of trichinosis but should suggest to the observer other channels of investigation. Occurring concurrently with the conjunctival chemosis will generally be seen an edema of the lids which later extends over the temporal and frontal regions and may finally involve the entire face. Painful movement of the eyes is frequently an associated and significant symptom. Exophthalmos, conjunctival ecchymosis, midriasis and retinal hemorrhages both superficial and deep are other ocular manifestations of the disease which occur with varying degrees of frequency.

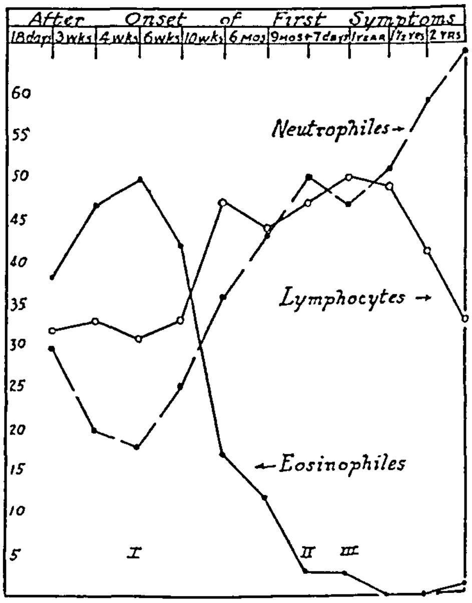

Fig. 1 (case 1).—At I, only minor symptoms of the disease had been present for the past two weeks; still, the eosinophil count continued to climb and the neutrophil count to fall; III is a confirmatory test of II taken seven days later.

Herrenschwand[2] has had the rare good fortune of examining the trichinella-infested eye microscopically at autopsy. In his observations the conjunctiva of the bulb and retrotarsal folds showed a marked round cell infiltration. There was a predominantly loosened structure of the epithelial cells of the conjunctiva which in many instances showed evidence of necrosis. Goblet cells were also seen to be in superabundance. The eye muscles were examined in section from the attachment of the ligament far into the belly of the muscle. In

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* Read before the Section on Ophthalmology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

[1] Williams, H. U.: J. M. Res. **6**: 64 (July) 1901.

[2] Von Herrenschwand, F.: Arch. f. Ophth. **119**: 374, 1927.

all, a large number of fully developed and encapsulated trichinae were present. In contradistinction to their abode of predilection in the rest of the skeletal musculature, where they were found at the ligamentous attachment, here they were found mainly in the belly of the muscle and as far back as 11 mm. Otherwise the pathologic conditions were identical. The number of trichinae found in the eye muscles was impressively large and exceeded that found in the muscles elsewhere. The cornea and sclera were spared. The uvea presented no pathologic change except in the choroid. The vessels here contained an increased number of eosinophils as would naturally be expected from the general blood picture. The retrobulbar portion of the optic nerve showed a marked increase of the cells in the interstitial neuroglia tissue, and also an inflammatory infiltrative area in the adventitia of the central artery of the retina. The latter was well preserved and presented a few small hemorrhages, some of which were in the nerve fiber layer and others in the nuclear layer. Further there was found a row of characteristic round accumulations of cells particularly in the peripheral portions of the retina, several being found in the region of the ora serrata. These sharply circumscribed accumulations of cells lay for the most part in the two nuclear and outer plexiform layers, causing them to be displaced and bellied out from their normal positions. Several lay directly on the pigment epithelium of the retina in the layer of the rods and cones, projecting the external nuclear layer inwardly. The location of the accumulations of cells was determined by the position of the retinal capillaries; the character of the pathologic process was indicated by a proliferation of the cells of the capillary walls. The walls of the capillaries were at times thickened, hyalinized and dilated. In many of the accumulations an edema of the tissues was noted as well as a marked inflammatory infiltration with noneosinophilic leukocytes and lymphocytes. In part this made up the entire picture. In all, ten such accumulations were found, but this does not indicate their actual count since the sections were not all examined. In six, young trichinae were found.

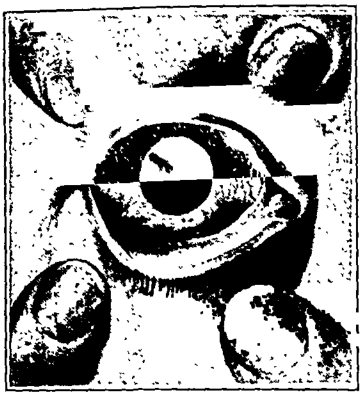

Fig. 2 (case 2).—Chemosis of bulbar conjunctiva overlying both the internal and the external rectus muscle in each eye.

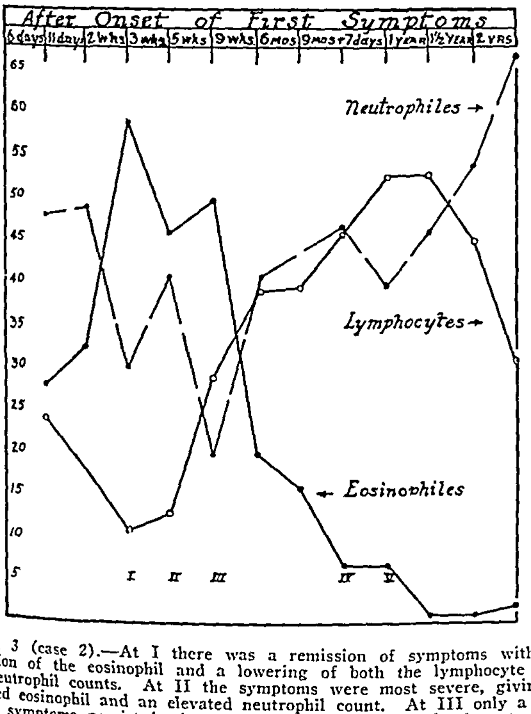

Fig. 3 (case 2).—At I there was a remission of symptoms with an elevation of the eosinophil and a lowering of both the lymphocyte and the neutrophil counts. At II the symptoms were most severe, giving a lowered eosinophil and an elevated neutrophil count. At III only a few minor symptoms persisted, the neutrophil count was at its lowest point and the lymphocyte count had returned to normal. V was a confirmatory test of IV taken seven days later.

The ocular signs and edema of the face gradually subside, usually after the first week following their appearance. On the other hand the early general symptoms—malaise, constipation or diarrhea, gastritis, hyperpyrexia ranging from 100 to 105 F., and chills with profuse sweating—persist with a tendency to remissions. The migratory stage of the trichinella being now well established, generalized involvement of the skeletal musculature assumes a prominent rôle in the symptomatology. The more active muscles—tongue, extra-ocular, facial, diaphragmatic, intercostal and those of the extremities—are the earliest and most acutely involved.

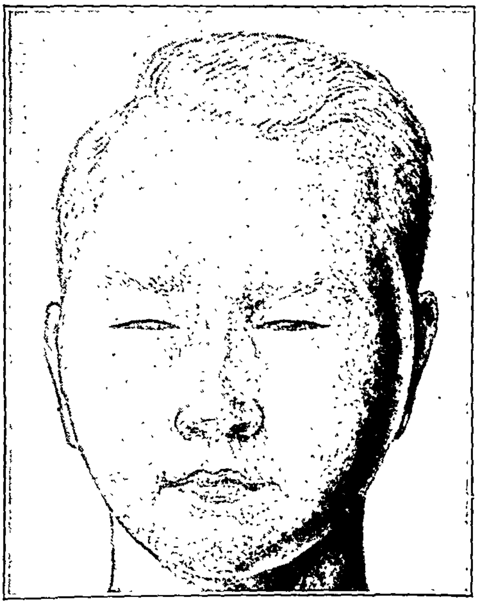

Fig. 4 (case 2).—Edema over maxillary, frontal and temporal regions; proptosis of each eye, with extra-ocular movements limited and painful.

Occurring early in the disease there is invariably an eosinophilia ranging from 10 to 80 per cent. In no other disease is this finding so constant or of such a high percentage. It is present almost at the onset of the first symptoms or even in the absence of any other sign or symptom indicative of trichinella infestation. Nor does the percentage or the length of time of the persistence of the eosinophilia give any indication as to the severity of the infestation. Thompson[3] reported a case in which the temperature was 105 F. and the white blood count 10,000, with 70 per cent polymorphonuclears, 20 per cent lymphocytes and 12 per cent eosinophils. During convalescence with a normal temperature the eosinophilia rose to 62 per cent.

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[3] Thompson, W. G.: Am. J. M. Sc., August, 1910.

As in the differential blood count, further burden of proof or confirmation of diagnosis falls on the laboratory in the demonstration of the trichinella larvae. This is most readily done by examination of a section of the affected muscle under the microscope. Since it will not always be found easy to obtain the patient's permission for such a procedure, the importance of examination of the blood for the offending parasite should be emphasized. Trichinella larvae are found in the blood stream during the period of migration from the intestinal tract to the affected muscles, which in one of the cases here reported extended into the fourth week from the onset of symptoms. They were first demonstrated in the blood stream by Herrick and Janeway in 1909 and were found to occur in 33⅓ per cent of the cases. At autopsy the larvae have been found in the pericardial fluid, in pleural exudates, and in the cerebrospinal fluid. The adult male trichinella has been reported to be found in the stools, but in only a small percentage of the cases.

That there may be a great variation in the time and character of the onset, duration and intensity of the symptoms, especially in a family outbreak, is well demonstrated by these cases in a father, son and wife who partook of broiled pork chops on the evening of Dec. 12, 1927:

REPORT OF CASES

Case 1.—Mrs. B., the fourth day following the eating of pork, awoke, December 16, with a slight swelling of the right eyelids and cheek, general malaise, aching of the entire body, and a feeling of feverishness.

December 17, the edema had extended into the left eyelids and cheek. The bowels became constipated and the patient had severe chills with profuse sweats. Lactation of the breasts ceased. A blood culture was taken.

December 20, the temperature was 102 F., the pulse 118, and respirations 24. The report on the blood culture was "no growth." The bowels were constipated and the patient appeared quite ill. The edema had now extended over the entire face, beneath the chin, and over each deltoid region. She had no desire for food and vomited twice. A quick laxative was effectual.

December 22, the temperature was 100 F., the pulse 90, and respirations 20. The patient was greatly improved and now was able to be up a short period during the day. The tendency to constipation persisted.

.December 23, one week after the onset of symptoms, the patient complained for the first time of pains in the muscles of the legs and arms, which were described as cramps brought on when she started to walk, or to extend the legs while in bed. There were also various areas of edema and firmness of the skin, which were then considered areas of urticaria.

For an additional week the patient had a slightly elevated temperature, gradually improving generally. However, during this time and for several weeks thereafter she experienced rheumatoid pains in the muscles of the extremities, especially when putting them to use after an interval of rest.

Jan. 3, 1928, the patient was first seen by me, at which time she was apparently well. She complained only of occasional muscular pains. Examination showed a decided firmness of the deltoid and gastrocnemius muscles. There was no tenderness, pitting or discoloration of the skin. A blood smear was taken for a differential count (fig. 1). Microscopic examination of a centrifugated specimen of blood was negative for the presence of trichinellae.

Case 2.—Dr. B., December 23, eleven days after eating the pork, first noticed the beginning of a diarrhea and slight abdominal discomfort. The patient had previously been in good health. During the following few days these symptoms increased in severity with an accompanying headache, anorexia and general malaise.

December 28, the patient awoke with an edema of the eyelids which disappeared in a few hours. Although there were no definite muscular pains, he noticed that he was more easily fatigued than usual. An intractable diarrhea persisted.

December 29, I was consulted by the patient in regard to his eye condition, which he thought had resulted from the giving of alpine light treatments. His only complaint was of edema of the lids and conjunctiva. There was no photophobia, lacrimation or discharge. Examination showed considerable edema of the lids, especially the lower, and a characteristic chemosis of the bulbar conjunctiva overlying both the internal and the external rectus muscles in each eye (fig. 2). The corneas were clear; the pupils were equal and reacted well, and the fundi did not show any pathologic changes. The maxillary and frontal sinuses transilluminated clearly. The turbinates and mucous membrane of the nose were normal. No discharge was present. A tentative diagnosis of trichinosis was made. Mild mercurous chloride in divided doses followed by a saline cathartic the following morning was advised. A blood smear was taken for a differential count (fig. 3).

December 30, the patient awoke unable to open his eyes because of the increasing edema, which had now extended over the maxillary, frontal and temporal regions. There was quite evident proptosis of each eye, with extra-ocular movements limited and painful (fig. 4). Conjunctival chemosis had increased but no other ophthalmic signs were present. The temperature was 102 F.

Jan. 3, 1929, ten days following the onset of the symptoms, the patient's general condition was more serious; the ophthalmic signs remained the same. Blood was taken for a differential smear (chart 2). *Trichinella spiralis* was demonstrated in the centrifugated blood of the patient.

The patient's condition remained unchanged for several days with the temperature ranging from 100 to 104 F. in twenty-four hours. He had profuse night sweats, extreme diarrhea and prostration. Fluids sometimes to the extent of 2 gallons a day comprised the major part of his diet. A prescription of resorcinol, sodium bicarbonate, bismuth subcarbonate, heavy magnesium oxide and charcoal gave some relief of the gastro-intestinal symptoms.

January 8, eleven days after their first appearance, the edema of the lids and face together with the chemosis of the conjunctiva and proptosis were entirely gone. Extra-ocular movements were still painful, with some photophobia and severe frontal headache, especially after attempts at reading. Gastro-intestinal symptoms were lessened in severity but there still remained extreme general fatigue after the slightest exertion.

January 10 and 12 (the eighteenth and twentieth days of the disease), the patient experienced a most severe attack of painful respiration as a result of involvement of the intercostal and diaphragmatic muscles. One-fourth grain (16 mg.) of morphine sulphate was necessary for the relief of the pain and cyanosis. Ten cubic centimeters of blood was taken for examination. The laboratory report was positive for trichinellae.

Generalized weakness of practically all the voluntary muscles and pains in the lower extremity persisted for a further period of about three weeks, at the end of which time all signs and symptoms had gradually disappeared except for the abnormal blood picture (fig. 2).

Case 3.—Mr. B. did not note any untoward symptoms from eating the infested pork. This was explained at the time by the fact that the pork had been obtained from two different sources. However, a differential count of his blood several months later showed 4 per cent eosinophils, while on several occasions still later the count was normal or none at all were found.

COMMENT

A study of the blood in the first two cases was made at intervals over a period of two years, at the end of which time there was an entire absence of all the signs and symptoms of the disease. The eosinophil count was observed to be lowest during the acute stage of the disease, increasing with a remission of symptoms only to be reduced with each exacerbation. The neutrophil count was lowered in direct proportion to the increase in the eosinophils, and vice versa. With a gradual return of the eosinophil count to normal there was a corresponding increase in both the neutrophils and the lymphocytes. Behr[4] made somewhat similar observations except that he observed, in contrast to these conditions, that the lymphocytes followed closely the curve of the eosinophils in their return to normal. Here it is seen that, following a grave depletion of the neutrophils, the stimulus for regeneration affected both the lymphocytes and the neutrophils. The proportionate recovery of the lymphocytic count was much the greater, reaching a stage of mild lymphocytosis and then gradually receding to the normal.

Blood Counts Taken over a Period of Two Years

	Dec. 29, 1927	Jan. 3, 1928	Jan. 7, 1928	Jan. 13, 1928	Jan. 26, 1928	March 1, 1928	June 10, 1928	Sept. 9, 1928	Sept. 16, 1928	Jan. 4, 1929	June 3, 1929	Jan. 5, 1930
Case 1												
Neutrophils..........	..	30	20	18	25	36	43	50	47	51	59	66
Small lymphocytes..	..	24	28	29	31	40	38	27	23	24	31	25
Large lymphocytes..	..	8	5	2	2	7	6	20	27	25	10	8
Eosinophils..........	..	38	47	50	42	17	12	3	3	0	0	1
Basophils............	..	0	0	1	0	0	1	0	0	0	0	0
Case 2												
Neutrophils..........	48	49	30	41	20	41	44	47	40	46	54	67
Small lymphocytes..	20	12	8	8	24	33	35	36	48	46	34	26
Large lymphocytes..	4	6	3	5	5	6	5	10	5	7	11	5
Eosinophils..........	28	33	59	46	50	20	16	7	7	1	1	2
Basophils............	0	0	0	1	0	0	0	0	0	0	0	0

The ease with which errors in diagnosis are made is well demonstrated in each of the cases that follow.

1. Mrs. B.'s condition was first diagnosed by her dentist as a "slight infection" of the maxilla and later by a consulting surgeon as septicemia following the extraction of a tooth.

2. Dr. B., after leaving my office, visited the office of another friend, who made the diagnosis of chronic nasal infection and acute conjunctivitis following alpine lamp treatments. He was seen the following day by an internist who was equally positive in the diagnosis of foreign protein sensitization.

3. Mr. B.'s case was undiagnosed, whereas had I made an early examination of the blood it would most probably have shown the eosinophilia of trichinosis.

Several methods of treatment have been suggested and tried with varying results. Algora y Nieto[5] reports prompt recovery in seven cases in which 0.45 Gm. of neoarsphenamine was injected intravenously two or three times. It is the opinion of most authors (Magath,[6] Schwartz, Alexander), however, that the treatment is as yet unsatisfactory. It seems quite logical that the administration of purgatives (mild mercurous chloride in divided doses and a saline cathartic the following morning) with the onset of the first symptoms will eliminate large numbers of the trichinae, with in turn thousands fewer of the larvae entering the blood stream. That it is impossible by this means to avert altogether the migratory period is well demonstrated in the second case reported, in which an intractable diarrhea was the first symptom.

SUMMARY

Two of the cases here reported demonstrated well the symptomatology of trichinosis. The one showed a conjunctival reaction characteristic of trichinosis which I believe is present in possibly 50 per cent of all cases. The other patient did not present this sign but might have had she been examined earlier in the course of the disease. The third case, if trichinosis, was asymptomatic.

Eosinophilia persisted for a period of from ten to twelve months with a subnormal neutrophil count extending over an even longer period of time. There was no apparent lowering of the patient's resistance to infections during this time.

Trichinella larvae were found in the blood stream. In one case they were found as late as the fourth week following the onset of symptoms.

The only dependable treatment of apparent value is early purgation.

78 Adams Avenue.

ABSTRACT OF DISCUSSION

Dr. E. V. L. Brown, Chicago: Dr. Carter has called attention to a thoroughly characteristic, diagnostic and heretofore unemphasized finding in trichinosis, namely, a lemon-yellow chemosis confined to the conjunctiva over the external and internal rectus muscles, found early in the disease and in something over half the cases, indeed, in all but one of the ten cases seen by him. The eosinophilia, invariably present and ranging from 10 to 80 per cent, should almost complete the diagnosis.

The ophthalmologist should therefore be a considerable factor in the early recognition of these cases, and if they occur in 5 per cent of people who come to postmortem, as reported by Mitchell, there must still be much trichinosis extant. To my knowledge I have never seen a case.

Dr. F. H. Verhoeff, Boston: My attention was first called to this condition of the bulbar conjunctiva by Dr. Parker of New York many years ago. It seems to me that both pathologists and the general profession have been slow to realize the importance of this symptom in trichinosis. We see a good many cases in the Massachusetts Eye and Ear Infirmary, and have learned to recognize it quickly. The condition is very characteristic. In the typical case there is congestion and a few little conjunctival hemorrhages over the rectus muscles, and in the marked cases there is more or less chemosis. I myself think that with this eye condition, elevation of temperature and eosinophilia one may be certain of the diagnosis and it is a waste of time to make any further examination, such as examination of an excised piece of muscle. While the organisms have been found in the muscles of the eye, I do not feel absolutely certain, as does the author, that their presence in the ocular muscles is the cause of the eye condition, for the reason that the latter occurs before there are any symptoms of involvement in the other muscles of the body. Many of these cases are very mild. I have no doubt that many pass unrecognized entirely, simply regarded as conjunctivitis, or edema of the conjunctiva, of unknown cause. I am sure that before Dr. Parker called my attention to them I had missed many of these cases, because I see so many now. Most of the patients do well. I do not think we have ever had a case in which death occurred. Some of them go through their courses without any especially alarming or unpleasant symptoms. In making the diagnosis one is helped if one gets a story of the patient having eaten pork and having had some gastro-intestinal disturbance previously; but even without this I think the condition of the eye and the eosinophilia justify one in making the diagnosis.

Dr. T. B. Holloway, Philadelphia: Within the past few months three suspected cases have been seen in my service. Should such a case be first seen at the office, I believe it would be quite easy to overlook the possibility of trichina in the early stage. In the cases I have seen the chemosis was not excessive, but there was some edema of the lids with moderate bulbar injection and in one instance tiny punctate hemorrhages. Ocular rotations were painful. In the most striking case there was some cough but no definite pulmonary signs. The temperature was about 103 F. There was a high eosinophilia. Up to the time I last saw them, the cases were not definitely proved by finding the trichina.

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[4] Behr, W.: Folia haemat. **36**: 25 (March) 1928.

[5] Algora y Nieto, M.: Siglo méd. **73**: 157 (Feb. 16) 1924; abstr. J. A. M. A. **82**: 1232 (April 12) 1924.

[6] Magath, T. B.: Minnesota Med. **9**: 558 (Oct.) 1926.

Clinical Notes, Suggestions and New Instruments

PERFORATION OF THE CECUM BY A TOOTHPICK, SIMULATING ACUTE APPENDICITIS

Samuel McLanahan, M.D., Baltimore

Intestinal perforation and resulting abscess formation due to an ingested foreign body have been mentioned recently in The Journal.[1] An article by Bearse[2] focused attention on the subject. The two outstanding characteristics of the abscesses have been their slow development with consequent large size, and their location in connection with the large intestine. An exception was the duodenal perforation reported by Douglas.[3] The rectum is said to be the most common site for perforation by foreign bodies. A recent case coming to my attention presented rather different characteristics and offers another problem in differential diagnosis.

REPORT OF CASE

B. F., *a man, aged 44, was admitted to the* Union Memorial Hospital, April 20, 1930, under the surgical care of Dr. William A. Fisher, having been referred by Dr. Joseph W. Ketzky. On the previous day the patient had first noticed a dull pain in the right side of the abdomen; at times the pain increased in intensity. It had persisted for more than twenty-four hours but was unaccompanied by any nausea or vomiting. There had been a tendency toward constipation. On examination the temperature was 99.8 F.; there was marked tenderness over the right lower quadrant, accompanied by a moderate degree of muscle spasm; there was no mass on abdominal or rectal palpation. The leukocytes were normal and the urine was normal. A tentative diagnosis of acute appendicitis was made and immediate operation advised. Through a McBurney incision, the contents of the right iliac fossa were examined. Palpation of the cecum at once revealed the presence of a foreign object within its lumen, possibly a piece of wire. Evidence of a small abscess was seen along the lateral wall of the cecum. The appendix appeared *normal and was removed in the routine* fashion, the stump being inverted through a purse-string suture of fine black silk. Better exposure was at once possible and a small perforation in the lateral wall of the cecum could readily be seen. This led into a small abscess containing only a few drops of pus; subsequent culture yielded *Bacillus coli.* Projecting through the hole in the cecum was a foreign object, which on removal proved to be an ordinary toothpick. Cigaret drains were placed down to the site of the abscess and the wound was closed in layers. Convalescence was uneventful except for a rather prolonged healing of the wound. At no time was there any evidence of a fecal fistula. The patient had no recollection of having ever swallowed the toothpick.

COMMENT

The acuteness of the onset, the small size of the abscess and the location of the lesion are the striking points of this case. Obviously, an intraperitoneal perforation would be more readily noticed and diagnosed than an extraperitoneal one. This would account for the early acute symptoms, which were noted before the formation of a large abscess was possible. Such has not been the case with the slow-growing, large abscesses of the sigmoid area. Cecal perforations, because of their proximity to the appendix, will necessarily receive more prompt surgical intervention. A differential diagnosis, however, from an inflamed or ruptured retrocecal appendix would be a long chance. An interesting observation, previously made, and supported by this case, is that these patients are rarely conscious of having swallowed a foreign body, be it toothpick or fishbone.

Union Memorial Hospital.

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[1] Abscess from Swallowed Bone, Current Comment, J. A. M. A. **94**: 35 (Jan. 4) 1930. Durnam, D. C., and Belz, Ferdinand: Abscess from Swallowed Toothpick, J. A. M. A. **94**: 1830 (June 7) 1930.

[2] Bearse, Carl: Fishbones as a Cause of Intestinal Perforations, New England J. Med. **201**: 885 (Oct. 31) 1929.

[3] Douglas, John: Perforation of the Duodenum and Liver by a Fishbone, J. A. M. A. **95**: 265 (July 26) 1930.

ORAL APPLIANCE FOR RADIUM TREATMENT *

J. B. Williams, D.D.S., and S. W. Budd, M.D., Richmond, Va.

An implantation of radon seeds into the bony structures of the oral cavity is not always desirable. The limited amount of soft tissue in the alveolar ridge and the hard palate makes the interstitial use of radium very difficult and at times impossible. In these locations a surface application of radium is indicated.

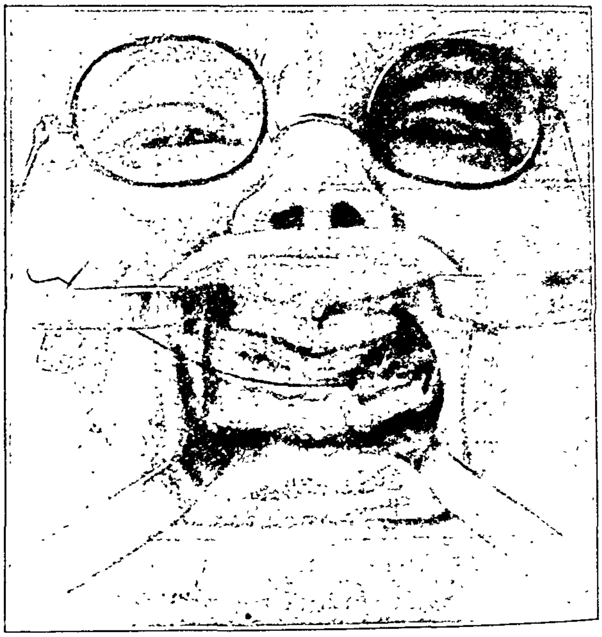

Fig. 1.—Appliance in position in mouth of edentulous patient.

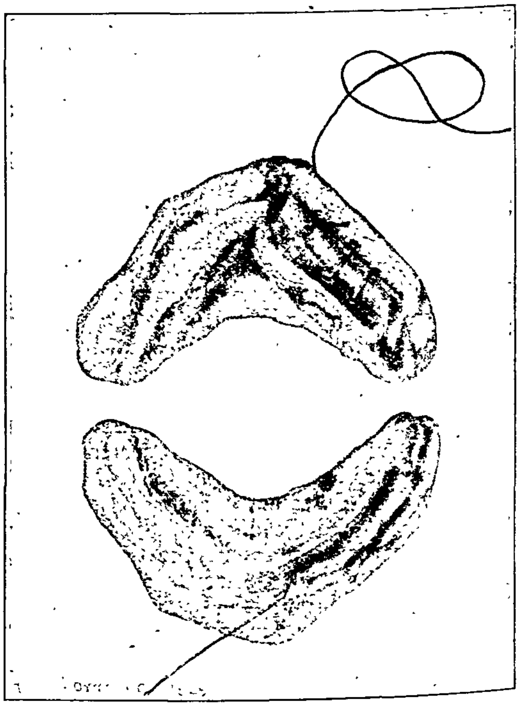

Fig. 2.—Upper and lower surfaces of appliance showing depressions to fit alveolar ridges and a deeper depression for retaining radium in a rubber container.

The great problem in oral applications is to get an applicator that will stay put. The movements of the tongue and muscles of deglutition will soon sweep ordinary applicators, such as forceps or pinch-cocks, from their anchorage. We experienced a great deal of difficulty in this regard until we commenced to use dental impressions made from a nonmetallic gum wax base. With them, we have been able to give treatments lasting over a period of hours without a great deal of discomfort to the patient.

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* From the McGuire Clinic.

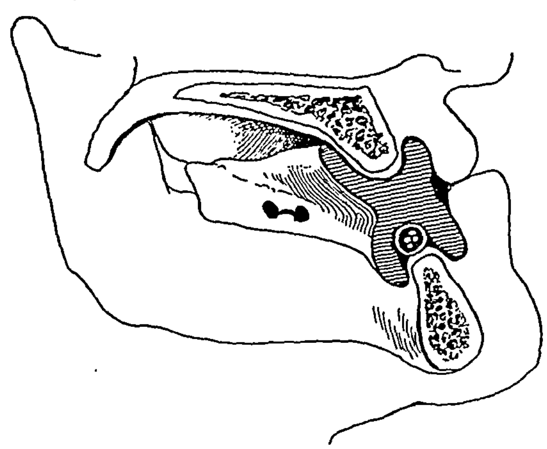

Fig. 3.—Cross-section of appliance in position with radium retained in exact position desired.

The accompanying illustrations will serve to explain our appliance.

GALLBLADDER VISUALIZATION IN JAUNDICED PATIENTS *

Hillyer Rudisill, Jr., M.D., Chicago

It is quite generally believed that it is not desirable to advise cholecystography in jaundiced patients; in the first place, because nonvisualization usually results, and, in the second place, because the reaction to the dye may be unduly severe.

In the course of the past eighteen months, ten jaundiced patients have been seen among a group of some hundreds coming in a routine manner for cholecystography. In all except one of these cases, the examination has yielded useful information without ill effects to the patients.

Tetraiodophenolphthalein sodium is excreted in the bile by the liver shortly after intravenous injection, and diverted into the gallbladder by the action of the sphincter of the common duct, if the subject is fasting. The filling of the gallbladder seems to depend almost entirely on the occlusion of the common duct. Once inside the gallbladder, the bile and dye become concentrated by the absorption of water until the material is dense enough for roentgen visualization.

There is no contraindication to attempted gallbladder visualization in obstructive or extrahepatic jaundice.

In the hemolytic group, tests for liver function usually do not reveal much impairment.

The mechanism of occurrence of toxic and infectious jaundice is uncertain. It is usually thought to be caused by a combination of liver cell damage and cholangeitis. This is the only group in which there could be any theoretical contraindication to cholecystography. The so-called catarrhal jaundice is a member of this group.

In eight of the ten jaundiced patients submitted to gallbladder dye injection, the clinical diagnosis was catarrhal jaundice. In seven of them there was normal visualization of the gallbladder without evidence of stone, and in the eighth the gallbladder was not visualized. The ninth case, deeply jaundiced, presented a well visualized gallbladder full of stones (confirmed at operation). In the tenth case the gallbladder was not seen and at operation a carcinoma of the common duct was found.

The dye used was tetiothalein sodium (N. N. R.), 3.5 Gm., dissolved in 30 cc. of triple distilled water, sterilized and filtered according to the instructions supplied by the manufacturer. It was injected intravenously at 4 o'clock on the afternoon preceding the filming. Films were made with the patient prone on the Potter grid (*a*) about sixteen hours after the injection of the dye and (*b*) about one hour later and perhaps forty-five minutes after the taking of a drink containing chocolate, fresh egg and malted milk.

SUMMARY

Ten jaundiced patients have been submitted to cholecystography. In eight the gallbladder was visualized, in two it failed to be visualized. None of the patients have suffered an unusual reaction to the dye.

CONCLUSIONS

1. Jaundice is not a contraindication to the intravenous administration of tetiothalein sodium.
2. It is advisable to give intravenous tetiothalein sodium solution to jaundiced patients as a possible means of helping to differentiate the causes of jaundice.

Council on Pharmacy and Chemistry

PRELIMINARY REPORT OF THE COUNCIL

SODIUM 2-OXO-5-IODO-PYRIDINE-N-ACETATE (INTRODUCED AS UROSELECTAN)

Sodium 2-oxo-5-iodo-pyridine-N-acetate (also designated as sodium-5-iodo-2-pyridon-N-acetate) has been introduced by Schering-Kahlbaum A. G. (Schering Corporation, distributor) for use in the radiographic visualization of the urinary tract under the proprietary name "Uroselectan." Since this name was tantamount to a therapeutic suggestion the Council recommended its replacement by an acceptable designation and accordingly the distributor is considering the adoption of the name Iopax, which the Council finds acceptable. The product is a definite chemical substance which promises to be an advance in the radiographic visualization of the urinary tract though its advantages, limitations and contraindications are at the present time not fully established. The product is suitable for experimental use by those who are versed in the technic of urologic examinations. In order to make available to physicians a concise and carefully considered statement of the introduction of the drug and the evidence for its use which is now available, the Council publishes the appended report prepared at its request by Drs. Bumpus and Braasch and extends at this time its appreciation to these investigators.

W. A. Puckner, Secretary.

REPORT ON SODIUM 2-OXO-5-IODO-PYRIDINE-N-ACETATE (INTRODUCED AS UROSELECTAN) TO THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION *

WILLIAM F. BRAASCH, M.D.
AND
HERMON C. BUMPUS, JR., M.D.
Rochester, Minn.

The idea of visualizing the urinary tract by intravenous injection of some chemical substance containing iodine was first brought forward by Rowntree, Osborne, Sutherland and Scholl in 1923, by means of a publication in The Journal of the American Medical Association. In their communication they demonstrated that the pelvis of the kidney, the ureter and the bladder could be rendered opaque to the roentgen ray by intravenous administration of solution of sodium iodide 10 per cent. Because of the toxicity of the drug in large doses and because of imperfect visualization of the renal pelvis in most cases, the method was not generally taken up by the profession.

In 1924, von Lichtenberg and Rosenstein repeated the work in conjunction with the perirenal pneumoradiographic method of Rosenstein. The same year Volkmann reported using the method, and in 1927 Lenardouzzi and Pecco published a report of their experience with it.

From 1921 to 1927, Binz and his assistant, Räth, synthesized seventy-three compounds of pyridine, with the idea of testing their germicidal properties in the urinary and biliary tracts when used intravenously. These they termed the "selectan" group of substances.

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* From the Division of Roentgenology, University of Chicago Clinics.

* From the Section on Urology, the Mayo Clinic.

In 1928, Hryntschak, before a congress in Vienna, reported being able to visualize the urinary tract by intravenous injection of some substances the nature of which he kept secret. He published his work, with illustrations, in the *Zeitschrift für Urologie* in 1929 and demonstrated visualization of the urinary tracts of both animals and human beings. It has since been affirmed that these secret substances included sodium 2-oxo-5-iodo-pyridine-N-acetate but that he failed to obtain successful results in human subjects. The suppression of essential facts from Hryntschak's publication renders his work unsuitable for scientific evaluation.

Swick of New York, an American studying in Europe on a fellowship furnished by the Libman Foundation of New York, was asked by Lichtwitz, in the summer of 1928, to come to his clinic in Altona and study urologic cases. Binz had supplied Lichtwitz with some of the "selectan" group ("selectan neutral") of drugs to be tried in infections with cocci of the biliary and urinary tracts. Lichtwitz wrote (*Der Chirurgie* **2**: 357, 1930): "Auf Grund dieser Versuche und unserer ziemlich grossen Erfahrungen über die Unschädlichkeit der Präparate bei peroraler und intravenöser Darreichung schien die Anwendung der Selectane zur Kontrastdarstellung aussichtsreich. Herr Dr. M. Swick aus New York hat diese Prüfung durchgeführt. Ihm verdanken wir die Uroselectanmethode." (On the basis of these experiments and of our relatively extensive experience regarding the lack of untoward effects of the preparations by peroral and intravenous administration, the application of the Selectans as contrast mediums appeared promising. Dr. M. Swick of New York has carried out these trials. To him we owe the Uroselectan method.) The results on patients were promising, but the properties of the compound first used were not entirely satisfactory.

In the spring of 1929, after Swick had worked seven months at Lichtwitz's clinic, Lichtwitz advised Swick to continue his studies in Berlin. There he might have opportunity to take advantage of the extensive clinical material in the clinic of von Lichtenberg, and might be in a position to be in close relationship with Binz for the purpose of having the preparation perfected.

Von Lichtenberg expressed great interest in the results already obtained, encouraged Swick to proceed, and placed the necessary facilities at his disposal. Conferences with Binz and his associates led to the systematic trial of other substances of the "selectan" series, in the hope of avoiding the objectionable features of "selectan neutral." The compound which gave the best visualization and which had the least toxicity was found to be one of the "selectan" group of Binz, synthesized by him in 1927. It was named "uroselectan" by von Lichtenberg after its administration to patients had proved successful. The drug was then applied to a larger number of patients, under the direction of von Lichtenberg, and the work progressed sufficiently to permit of Swick presenting his work at the Urologic Congress in Munich in October, 1929. This work was published in the *Klinische Wochenschrift* (**8**:2087, 1929). Von Lichtenberg at the same meeting read a paper on its clinical application (*Klinische Wochenschrift* **8**:2089 [Nov. 5] 1929).

In the meantime, Roseno, at the German Surgical Congress, which met in April, 1929, reported having obtained successful roentgenograms after intravenous injection of sodium iodide and urea. In the hands of some, however, this substance was reported often to be associated with reactions too severe to permit of its general use.

When Swick returned to America, he reported his work before the Section on Genito-Urinary Surgery of the New York Academy of Medicine, Jan. 15, 1930, and published his paper in the *American Journal of Surgery* in February. After this, and before the drug was placed on sale in the United States, it was arranged by von Lichtenberg, through Alexander Randall, secretary of the American Urological Association, to have it distributed to twelve different clinics, gratis. Those who had used the material reported their results at the meeting of the American Urological Association in New York in June. These reports were followed by a consideration of its clinical application by von Lichtenberg and a report on the chemistry of the drug by Binz. Previous to this meeting, von Lichtenberg had demonstrated its clinical value by its use in about 700 cases.

The technic of administration is as follows: The preparation, which is a powder, is prepared for use by dissolving 40 Gm. in 100 cc. of sterile distilled water. This is twice filtered and is sterilized by autoclave, or water bath, as any solution for intravenous injection. The material is supposed to contain 42 per cent of iodine and it has left the circulation four hours after injection in cases in which renal function is good.

Administration is intravenous and is given with the solution at body temperature at the time of injection. The patient's face immediately becomes flushed, and tachycardia and palpitation occur. Patients experience a feeling of general warmth, and in more than half of the cases they complain of pain in the arm, near the shoulder, which they describe as a feeling that the arm is bursting. There is usually considerable dryness of the throat, and thirst, but water is withheld in order that the drug may be secreted in concentrated form. These symptoms usually pass off within ten minutes. Occasionally nausea and vomiting take place, and urticaria has been observed. Symptoms resembling acute iodism, manifested by lacrimation, sneezing and dyspnea, have occurred, but such reactions always have been transitory and delayed reactions never have been observed. After ten minutes from the onset of injection, untoward symptoms never have developed.

Roentgenograms are taken from fifteen to twenty minutes after injection, and again from thirty to forty minutes after the first roentgenogram. Before the second roentgenogram is taken, the bladder is emptied, in order that the shadow of the drug in the bladder will not obscure the lower parts of the ureters. If the first plates show that but little of the drug has been secreted, it is presumed that the kidneys are functioning poorly, and several hours should be allowed to elapse, during which plates should be made at intervals. Impairment of renal function will allow but poor concentration of the drug in the bladder and practically none in the kidney; many hours are required for its secretion.

This fact led Swick to develop a gravimetric method of determining renal function which can be applied to urine from each kidney separately if the ureters are catheterized but which is of more general application when used with urine from the bladder to indicate the function of the two kidneys together. This method as yet has not received sufficient clinical application for its worth to be determined.

The greatest field of usefulness for sodium 2-oxo-5-iodo-pyridine-N-acetate is in those cases in which the fact of the presence or absence of a second kidney is in doubt because only one ureter can be found by cystoscopic examination, or because retrograde injection of the ureter is prevented by stone or stricture. In such a case if the kidney on one side becomes visualized after intravenous injection of sodium 2-oxo-5-iodo-pyridine-N-acetate, and a pelvic outline is not seen on the other side, one is reasonably sure of the absence or of the extremely poor function of the kidney on the latter side.

Good visualization occurs, not only as a result of good renal function but also secondarily to urinary retention. Therefore, a dilated renal pelvis or ureter usually will be well outlined, although the function may be greatly impaired as the result of retention of the drug. This fact lessens considerably the usefulness of the drug in determining renal function by visualization. Its usefulness is lessened also by the fact that, in many apparently normal cases, visualization of the renal pelvis is poor; this is hard to explain, for a similar case in which injection is done with the same technic visualization may be good. Undoubtedly much improvement will be noted in the drug and its application in the course of the next few years.

As a substance for injection into the renal pelvis through the ureteral catheter, for purposes of pyelography, sodium 2-oxo-5-iodo-pyridine-N-acetate in the same dilution as that used for intravenous injection has proved the best material yet developed and seems certain to replace sodium iodide, as the latter replaced thorium compounds. Because sodium 2-oxo-5-iodo-pyridine-N-acetate is free from toxic effect, bilateral pyelograms can be made. If pyelovenous backflow occurs, the drug does not cause bodily reaction, and if retention in a hydronephrotic sac is discovered, irritation such as that which resulted from sodium iodide does not occur.

The drug has been used in America now for a sufficiently long period to allow of the assertion that its application is not followed by any alarming sequelae. Delayed manifestations need not be expected.

SUMMARY

As a substance for injection through the ureteral catheter, sodium 2-oxo-5-iodo-pyridine-N-acetate is the best material so far obtained; used intravenously, it often helps in the diagnosis when ureteral catheterization is impossible; however, it is not secreted in the same concentration by all kidneys of apparently equal function and hence is at times disappointing; as a substance for renal functional test, its worth is not yet proved.

PRELIMINARY REPORT OF THE COUNCIL

The Council has authorized publication of the following preliminary report. W. A. Puckner, Secretary.

AVERTIN

Avertin was submitted to the Council in February of the present year for its consideration.

The Council recognizes the fact that Avertin presents certain desirable properties but definite action concerning its recognition was postponed pending the result of investigations of certain of its side actions now being conducted. For the information of the medical profession the Council submits the following report concerning the present status of the drug:

Avertin is tribrom-ethanol, $CBr_3.CH_2OH$, a white crystalline substance. It was introduced in Germany by Willstaedter and Duisberg in the summer of 1926, to be used alone for rectal anesthesia or to be supplemented by other narcotics, including morphine and ether. It was supplied to a number of clinics, in which it was used experimentally. A superficial pharmacologic study of Eichholtz made in the laboratory of the manufacturers, and a clinical report by Butzengeiger were presented at the German Surgical Congress at Berlin in April, 1927. At that meeting Sauerbrook reported three deaths; Reischauer three; Melzner four; Druegg two; and Sievers one death, though Avertin is not blamed by them for all of these deaths. Following the severe criticism of Avertin by numerous surgeons at the meeting of the congress, it was temporarily withdrawn by the manufacturers.

The powder is soluble in about 30 parts of water at 40 C., but the aqueous solution is prone to decomposition, and some of the accidents attending its use were attributed to the decomposition products. The manufacturers claim to have overcome this tendency to decomposition by marketing Avertin in the form of a solution of which 1 cc. contains 1 Gm. of Avertin dissolved in amylene hydrate (tertiary amyl alcohol). The amount of amylene hydrate is not stated. This preparation was marketed in 1927 and has been the subject of several hundred reports. The testimony concerning Avertin is so conflicting that it is impossible at the present time to know precisely where to draw the line concerning its advantages and its disadvantages. This is especially true concerning its contraindications, about which there is no agreement, nor is there even an approach to an agreement concerning the proper dosage or the technic of using it in any of a great number of different procedures.

Avertin depresses the respiratory center, lessening both frequency and volume; it depresses the vasomotor center, causing a fall of blood pressure. The depression of the respiratory center is the more pronounced; but when it coincides with the depression of the vasomotor center, it increases the danger, especially when it is used with morphine and other accessory narcotics. Killian states that Avertin acts on the liver like chloroform. In 1928 he analyzed a number of reports of deaths from Avertin and concluded that Avertin injures the respiratory center more than chloroform or ether narcosis of equal depth. Killian severely criticizes Melzner, stating that the larger surgical clinics in general take a cautious attitude, some warning against it and some wholly denying its use. He reported that the drug had been tested with little discrimination by about one hundred surgeons, whose reports are often fragmentary and do not show precautions necessary for careful examination (Loewe, a pharmacologist, also reported adversely on Avertin). It may be added that the greater number of the reports up to the present time are of this character. Schwalbe in 1927 enumerated some twenty surgical and gynecologic clinics which refused to use Avertin on the basis of available reports or, having used it for a time, gave it up; and he also mentions ten clinics in which its use was given up or much limited on account of serious accidents. However, many other surgical and women's clinics have reported better results. Aside from the depression of the respiratory center and the vasomotor center, and the probable occasional injury to the liver, the principal objection to Avertin lies in the fact that anesthesia induced by it is not under control. This applies partially to so-called basis narcosis (also referred to as "basal anesthesia"), to which the manufacturers themselves are now inclined to restrict Avertin, apparently recognizing the dangers of complete narcosis with it. The manufacturers claim that amylene hydrate stimulates the respiratory center, thereby implying that this materially adds to the safety of Avertin. Few studies of amylene hydrate have been made, but Harnack and Meyer reported that the respiration is at first increased in rate and depth, and then gradually weakened up to paralysis of the respiratory center. They also reported that the blood pressure sinks slowly up to the point of death in mammals, that it paralyzes all parts of the central nervous system successively like alcohol, and that it paralyzes the heart muscle in the frog. In view of the work of Harnack and Meyer, which has not been disputed, it is misleading to maintain that amylene hydrate stimulates the respiration.

The advantages claimed for Avertin liquid include: 1. Absence of so-called psychic shock or mental distress (almost unanimous). 2. Absence of irritation of the respiratory tract with less postoperative bronchitis and pneumonia. 3. Absence of direct injurious action on the heart, kidneys or other organs, with the possible exception of the liver. 4. Convenience for operations about the face, especially when a cautery must be used. 5. Usefulness in long operations when deep anesthesia is not necessary. 6. Less frequent vomiting than after ether or chloroform. 7. Lasting sleep after operation, frequently making it unnecessary to use morphine for the relief of postoperative pain. 8. Amnesia. 9. Absence of injury after repeated administration (as in tetanus). 10. Rapid elimination (implying less toxic action). (It should be understood that publications concerning "Avertin" refer in part to Avertin alone, and in part to Avertin liquid containing amylene hydrate.) The disadvantages include: 1. Higher death rate than after ether. 2. Depression of respiratory center. 3. Depression of circulation. 4. Acidosis as actively as after chloroform. 5. Insufficient muscular relaxation in laparotomy (?). 6. Falling back of tongue, making constant observation necessary until the patient is fully conscious. 7. Lack of control from moment to moment (almost unanimous). 8. Want of exact dosage. 9. Narrow zone between anesthetic and fatal dose. 10. Disadvantages inherent in mixed narcosis. 11. Lack of adequate pharmacologic study of Avertin and its synergistic action with morphine, ether and other substances. 12. A lack of agreement concerning the indications and contraindications.

A preliminary report such as this can hardly be more than suggestive in view of the almost innumerable problems that are involved; but the foregoing presents the evidence concerning the drug which is at the present time available to the Council. Though the present evidence indicates that Avertin may prove valuable as a means of initiating narcosis (so-called basis narcosis) but not for complete narcosis, the Council decided not to admit the drug to New and Nonofficial Remedies: (1) until satisfactory studies of its properties, its advantages and its disadvantages have been made; (2) until the contraindications have been satisfactorily established; (3) until a generally accepted technic whereby it can be used as satisfactorily as ether has been established; (4) until the action of the amylene hydrate in Avertin liquid—whether by addition or by potentiation—has been determined and the amount declared; and (5) until the advertising has been revised to omit misleading statements contained in the present advertising and especially to recommend the product only for initiation of narcosis (basis narcosis) and not for complete narcosis.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 8, 1930

AGRANULOCYTIC ANGINA

The first reference to agranulocytic angina seems to have been made in 1907, when Turk[1] called attention to the low granulocyte count in some cases of severe sepsis. The suggestion apparently did not arouse interest until 1922, when Schultz[2] described a number of cases which revealed an almost complete absence of granular cells associated with a group of symptoms and pathologic conditions which he declared formed a clinical entity. Later Friedemann[3] named this group of cases "agranulocytic angina." The features emphasized by Schultz were a high fever, occurring generally in elderly women with necrotic throat infections, rapid exhaustion, slight jaundice frequently, leukopenia with few if any granular cells but no involvement of the red blood cells or platelets, and death within a short time in almost every case. After Schultz's work became known, case reports began to appear in medical literature everywhere; now more than 150 cases have been recorded. In 1927, Kastlin[4] collected reports of forty-three cases and reported two more, with only three recoveries, a mortality of 93 per cent. Stomatitis was always present in these cases, necrotic ulcers occurring in the mouth, larynx or esophagus. Petechial hemorrhages were found in twelve cases at necropsy. In some of these cases there were high platelet counts but in others the counts were low. Nonreactive ulcers were found in the gastro-intestinal tract and in the female reproductive system. Because of the variations in the cases reported, Kastlin believes that agranulocytic angina is not a clinical entity. Moreover, numerous cases have been reported that vary even further from the original description. In some cases only a sore throat without ulceration, and the typical lack of granulocytes, are the diagnostic symptoms. Several investigators report an ulcer in the rectum or vagina without involvement of the throat, the clinical picture being otherwise the same. Blumer[5] reports a case beginning with numerous boils that became large abscesses, with the blood and the clinical course essentially the same as in the cases described by Schultz. Harkins[6] reports eight cases, four of which he considers to be agranulocytic angina and the other four of which he calls granulocytopenia. He classes one case as granulocytopenia because of the anemia and evidences of hemorrhagic diathesis, although it answers Schultz's description otherwise. Blanton[7] reports a case which he calls agranulocytic angina in which there was a staphylococcus abscess in the neck. One abnormally low granulocyte count was found and, after incision of the abscess, the count promptly returned to normal the next day. Farley[8] has collected reports of a series of cases following arsphenamine therapy, which had an agranulocytic period. It is clear that there may be a variety of conditions associated with the low granulocyte count. Obviously, they cannot all be called agranulocytic angina. Schultz's description would eliminate a number of cases which, except for the location of the ulcer, seem to have the same basis. Stocké[9] divides the cases into three different groups, one group answering Schultz's description, a second showing the presence of anemia, and the third evincing a tendency to hemorrhage. The name agranulocytosis, first used by Schultz, has been used by some as synonymous with agranulocytic angina and by others for differentiation. Only one condition appears common to all these cases, namely, the lack of granulocytes; therefore agranulocytosis or granulocytopenia would seem the most suitable name. While some cases may seem to fall into definite groups, so many cannot be classified that it would be too arbitrary to justify separation until other factors are discovered that will more distinctly differentiate the various types of cases.

Bacteriologic study has not yet given any clear-cut results. There are reports of a number of positive blood cultures, but the variety of organisms found has only added to the confusion. The organisms are, for the most part, various types of staphylococci and streptococci. Friedemann isolated *Bacillus pyocyaneus* from the blood stream once. Lovett[10] found the same organism in the throat and determined that the isolated organism caused a relative lowering of the granulocyte count in rabbits. Dasse[11] also found the organism in the throat in almost pure culture and verified Lovett's animal experiments. The blood cultures were negative in both cases. Vincent's organism frequently has been isolated from the throat, Harkins reporting it in five of his cases. Arsphenamine was used in several of his cases without apparent ill effects. Yet Farley's cases seemed to be due to the use of arsphenamine. Other throat cultures have shown a large variety of organisms that have been regarded as secondary invaders. In some cases in which a blood count has been taken early, a lack of granulocytes was found before the ulcerations appeared. Roberts and Kracke's[12] patient showed only 10 per cent granulocytes seventy-two hours before and no granulocytes the last twenty-four hours before she became ill. Cultures of the bone marrow have been taken by some workers but organisms were not found. The cases reported are endemic in character and there is no evidence of transmission by direct contact. One of the cases reported by Harkins as agranulocytic angina followed extraction of an abscessed tooth, a second case followed an abscess in the neck after tooth extraction, while a third case began one week after tonsillectomy. These, as well as other reports, indicate that some slight infection may in certain people precipitate the illness. Harkins finds reports of at least six cases presenting an abnormal granulocyte count prior to the onset of the illness.

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[1] Turk, W: Wien. klin. Wchnschr. **20:** 157, 1907.

[2] Schultz, W.: Deutsche med. Wchnschr. **48:** 1495, 1922.

[3] Friedemann, H.: Med. Klin. **19:** 1357, 1923.

[4] Kastlin, G. J.: Am. J. M. Sc. **173:** 799 (June) 1927.

[5] Blumer, George: Am. J. M. Sc. **179:** 11 (Jan.) 1930.

[6] Harkins, H. N.: Granulocytopenia and Agranulocytic Angina with Recovery, Arch. Int. Med., to be published.

[7] Blanton, W. B.: Agranulocytosis with Recovery, J. A. M. A. **92:** 2099 (June 22) 1929.

[8] Farley, D. L.: Am. J. M. Sc. **179:** 214 (Feb.) 1930.

[9] Stocké, Achilles: Folia haemat. **40:** 40 (numbers 1 and 2) 1930.

[10] Lovett, Beatrice R.: Agranulocytic Angina, J. A. M. A. **83:** 1498 (Nov. 8) 1924.

[11] Dasse, H. W.: Agranulocytic Angina, J. A. M. A. **91:** 1718 (Dec. 1) 1928.

Is granulocytopenia a new disease or were cases not recognized or reported before Schultz's description? Harkins has collected reports of about 150 cases from the literature with a mortality of 82 per cent. Reports indicate that patients without necrotic ulcers recover more frequently, which helps to account for his lower mortality. The reports also indicate that the ultimate prognosis of patients who recover may not be so good. There are at least five cases on record in which the patient seemingly recovered only to succumb to another attack in an interval of from three months to two years. All cases of agranulocytic angina should be studied exhaustively both clinically and bacteriologically if anything is to be known about the etiology. Lovett's work should be extended and attempts should be made to see whether a definite syndrome can be produced experimentally. At present it would seem that agranulocytic angina or, better, granulocytopenia is not a definite clinical entity but represents an indefinite group of cases resulting from some injury to the granulopoietic mechanism.

THE SEARCH FOR HEALTH

One of the most widely discussed addresses among the varied communications presented at the recent meeting of the British Medical Association at Winnipeg was the lecture of the distinguished English physician Dr. Robert Hutchison on "Mankind's Pursuit of Health." Starting with the thesis of G. K. Chesterton that "of all human things the search for health is the most unhealthy," he ventured the suggestion, perhaps ironically, that the old ignorance about the body and stolid resignation to its ills was probably a more "healthy" attitude, and certainly a happier one, than the modern curiosity and overanxiety.

Many physicians may read these pronouncements with mingled emotions. They doubtless agree with the arraignment of that overanxiety which develops hypochondriasis in regard to bodily well being and approve the censure of the numerous fads that are lauded by single track minds as the secrets of securing perfect health. Many of Dr. Hutchison's auditors and readers, however, wonder whether the laudation of a single universally applicable rule of health—moderation, the old universal secret of health—does not involve a condemnation of the choicest efforts of modern personal hygiene. The ridicule of calories and vitamins, of whole wheat and golf and "better baby" campaigns and what not sounds familiar enough. It is easy to make an audience laugh; but what is created out of the débris of destructive criticism is not infrequently almost as fatuous as some of the things that are assailed. Both the revolutionist and the reactionary deal as a rule with extremes of statement. They fail to recognize the middle course that sanity dictates.

Let us examine a few instances. Dr. Hutchison warned his hearers:

> Likes and dislikes should be listened to; they are nature's indications of what probably agrees or disagrees. As to "calories," our appetite was given us to tell us how much food we need and in health is usually a trustworthy guide. Leave raw vegetables, except salads, to the herbivorous animals and let the vitamins look after themselves.

Such advice would admittedly be sound if all of us were living in a garden of paradise where all of the earth's choicest dietary offerings were at our command. Unfortunately, the satisfaction of the demands of man is all too often limited by geographic, regional, climatic and particularly economic factors. War has taught us what all this may mean. The praise of appetite as a sole safe guide in all matters of diet overlooks the drunkard and the glutton. One may sympathize with the undue propaganda of exercise for health and counsel moderation; but is there a human instinct for "careful living"?

The country's greatest need was once described as a good five cent cigar. The summum bonum of the well reared person is described by our British colleague as character. "A country's greatest asset is character. Let us therefore cultivate character and let health look after itself, being assured that to a nation made up of men and women of character, all things, health included, will be added." Nothing is said about the effect of health on character; but one might venture a sally as to modifications that arthritis or hay-fever or perennial colitis might impose on it.

Science has been described as organized common sense. Shifting as the tenets of science may be, they nevertheless have made worth-while contributions. Calories have saved more than one deserving life; and vitamins have banished much human distress. The realm of scientific progress has given much that may be profitably promoted without detriment to character and with the occasional enjoyment spelled by good health.

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[12] Roberts, S. R., and Kracke, R. R.: Agranulocytosis, J. A. M. A. 95:780 (Sept. 13) 1930.

THE BODY FLUIDS AND BURNS

The importance of the body fluids was recognized by Celsus something like twenty centuries ago. Yet it is within the lifetime of most practicing physicians of today that administration of fluid for its own sake has become a widespread life-saving measure. The reason that general recognition of this factor in treatment has been comparatively recent is probably that chemical methods were necessary before studies of metabolism could be exact and that investigations of water metabolism were consequently delayed. Rubner in Europe and Rowntree[1] in this country have given great impetus to investigation of the subject last mentioned. For the most part, the indications for restoration of lost fluids are well known. However, the rationale of the introduction of fluids in cases of burn, as recently emphasized by Underhill[2] and by Bancroft[3] is not so widely recognized.

Just as other injuries cause shock, so does a burn; but a condition of anhydremia also results, and this is of great significance, writes Underhill. If a burn involves one sixth of the surface area of the skin, the loss of fluid in twenty-four hours may equal 70 per cent of the total blood volume. Since Rubner has shown that in starvation an animal can live after loss of nearly all its glycogen and fat, half of its protein, and nearly half of its body weight, but that it dies from loss of one fifth of its water,[1] the fatal influence of the great loss in burns is apparent. With such depletion the blood becomes concentrated, the circulation slowed, and the blood loses oxygen. Partial asphyxiation results, metabolic processes become altered, the heat-regulating mechanism becomes impaired, the temperature falls, and vital activities are suspended. In the treatment of a burned patient, therefore, the burn itself is relatively unimportant at first. Even the clothing should not be removed. Attention to the all-important systemic effects of the injury should embrace, besides the usual measures against pain and fall in temperature, immediate intravenous administration of 1,000 cc. of physiologic solution of sodium chloride at a rate not greater than 25 cc. a minute. Thereafter fluid, particularly physiologic solution of sodium chloride, should be introduced by every available channel, in the amount of from 4 to 8 liters in twenty-four hours, until the capillaries have lost their abnormal permeability, fluids are retained, and the concentration of hemoglobin and of chlorides in the blood approach normal. Usually the critical period has passed in from twenty-four to forty-eight hours. Underhill is not concerned with toxemia. He doubts the existence of a specific burn toxin, and he has not seen symptoms of intoxication develop if his method of treatment has been employed.

Bancroft's treatment of shock is in general similar to Underhill's, including administration of fluid. However, he believes that toxemia is an important element and that whereas those patients who die within forty-eight hours succumb to shock, those who die in the period between forty-eight hours and three weeks are overwhelmed by toxemia. After the period of shock, therefore, his use of solution of sodium chloride is directed against toxemia and toward the maintenance of body fluids and blood chlorides. When the onset of toxemia is signalized by vomiting, he gives from 2 to 3 liters of "saline solution" a day; with marked vomiting, from 500 to 1,000 cc. of 2 per cent solution of sodium chloride subcutaneously, or 500 cc. of 3 per cent intravenously, very slowly.

Both authorities administer solution of sodium chloride within the first forty-eight hours after an extensive burn, and both administer it thereafter if necessary, although their reasons for doing so do not coincide in all respects. The important feature would seem to be that both place great reliance on the maintenance of body fluids and blood chlorides and that both are successful. Cases of burn, therefore, seem to be another field in which administration of solution of sodium chloride may be the means of saving life.

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[1] Rowntree, L. G.: The Water Balance of the Body, Physiol. Rev. **2**: 116 (Jan.) 1922.

[2] Underhill, F. P.: The Significance of Anhydremia in Extensive Superficial Burns, J. A. M. A. **95**: 852 (Sept. 20) 1930.

[3] Bancroft, F. W.: The Treatment of Cutaneous Burns, New England J. Med. **202**: 811 (April 24) 1930.

Current Comment

NONVOLATILE SUBSTANCES AS ANESTHETICS

Recently the Council on Pharmacy and Chemistry announced the acceptance of a barbital derivative for oral and rectal use as a preliminary to surgical anesthesia. Experimentally this product has also been administered intravenously as a means of inducing complete anesthesia or for partial anesthesia (to be completed by administration of a volatile anesthetic), and a considerable number of reports of such experimentation have been published. Such intravenous use is, however, far from safe; the Council therefore accepted the product only for oral or rectal use as a preliminary to surgical anesthesia. The manufacturer is not marketing the product for intravenous use. In this issue of The Journal appears a preliminary report of the Council on Avertin, which is tribromethanol. This substance has been proposed not only for initiating anesthesia but also as the chief means of inducing unconsciousness, to be supplemented when necessary by a small amount of an inhalation or local anesthetic. The Council concludes from a review of the evidence that Avertin may prove valuable as a means of initiating narcosis but that it is not proved to be a safe agent for complete narcosis, either by itself or combined with a volatile anesthetic. The Council holds that further study of the product is necessary. These two products illustrate a modern tendency in anesthetics set forth in the abstract of an article by Lendle[1] appearing also in this issue of The Journal. This tendency is represented by the effort to find a nonvolatile agent for complete narcosis or, failing that, a nonvolatile agent to serve for so-called basal anesthesia, supplemented by the use of a volatile anesthetic. Lendle's paper seems to show that neither Avertin nor the barbital derivative "Pernocton" is a satisfactory solution of the problem. Safe and efficacious new methods of anesthesia may result from the modern work in this field; but all the evidence indicates that the products thus far proposed for so-called basal anesthesia are hypnotics or sedatives and should be used as such. They cannot be safely used for complete anesthesia and can be safely used in combination with other agents for the production of complete anesthesia only by those thoroughly experienced in the administration of anesthetics and closely familiar with the studies of the use of nonvolatile agents for anesthesia. Thus far their intravenous use must be considered unsafe.

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[1] Miscellany, p. 1451.

PULMONARY ASBESTOSIS

In 1928 The Journal,[1] commenting on an article by W. E. Cooke,[2] suggested that pulmonary asbestosis, because of its dangers and its unique pathologic features, deserved more attention than had been accorded it. Two and a half years later Mills[3] reported the first case from the United States. His patient had worked in an asbestos mine in South America prior to 1898, had returned to the United States, and again had been employed in South America, this time in an unstated occupation, between 1911 and 1913. He died in Minnesota in 1929. The history of the case indicates that the asbestos which was found in the subject's lungs at necropsy was inhaled prior to 1898. If so, the profound pulmonary changes which evidently were induced by the asbestos, and which seemingly contributed to the patient's death, were present thirty-two years after the agent that caused them was introduced. Even if the exposure to the asbestos occurred at the time of the patient's later visit to South America, the pulmonary injury endured at least seventeen years. Accordingly, Mills has concluded that pulmonary asbestosis is an incurable disease, from which the patient may or may not die. The cause of death, if tuberculosis is avoided, seems to be pulmonary fibrosis with its indirect effect on the heart. At necropsy of Cook's patient, pulmonary fibrosis and evidence of extensive tuberculosis were found; it was not certain whether the fibrosis was due more to the tuberculosis or to the asbestosis. In Mills's case, evidence of tuberculosis was not found but the fibrosis was severe. The conjecture seems warranted, therefore, that asbestos is capable of producing two types of injury, somewhat as iron dust is capable of producing two types of pulmonary siderosis. According to Bohrod,[4] who cited the work of Hart, the red type of iron lung is found in persons who work in iron mines and in factories using certain iron pigments; pneumonoconiotic induration predominates and there is little tuberculosis. Metal grinders and polishers display the black type of iron lung; induration is less evident and tuberculosis is unrestrained. That siderosis and asbestosis are allied seems likely in view of the evidence that the iron-containing[1] portions of asbestos constitute the danger to health in the asbestos industry. Concerning the relation of physicians of the United States to this industry, Mills pointed out that asbestos is mined and manufactured in many parts of this country and that pulmonary asbestosis surely will be encountered. In England the workmen's compensation act has recently been extended to include this condition.[5]

INSENSIBLE PERSPIRATION AND BASAL METABOLISM

The estimation of basal metabolism has proved to be unexpectedly valuable as a diagnostic aid. The measurements of the respiratory exchange, which are now depended on to furnish the requisite information, have been greatly simplified in recent years, so that the procedure can be made applicable even in the office of the individual practitioner. There are, however, refinements of technic that ought to be applied more widely than they usually are. This refers particularly to the proper preparation of the patient and to the maintenance of strictly "basal" conditions. In the case of infants and children, obvious difficulties present themselves in the measurement of respiratory exchange as well as in direct estimations of heat output. Fortunately an alternative procedure has been proposed in the relatively simple method of ascertaining the insensible losses represented by perspiration. The determination of loss by insensible perspiration as an index of metabolism was discussed in detail in 1926 by Benedict and Root[6] in its application to adults. Its use in relation to children has been championed by S. Z. Levine and his co-workers[7] in the Department of Pediatrics of the Cornell University Medical College, New York. Basal standards of insensible perspiration were proposed by these workers in reference to the normal infant. The latest researches of Levine and Marples[8] have been concerned with the validity of the proposed methods and their basis of reference to predictions. A statistical study was made of the published data responsible for the standards at present available for the basal metabolism and basal insensible perspiration of normal infants. The investigation included consideration of the correlation between the two variables in simultaneous calorimetric measurements as well as in independent measurements with the respiration chamber and the balance. The evidence secured points to a high positive correlation between the physiologic mechanisms of heat production and insensible perspiration in the human subject.

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[1] Pulmonary Asbestosis, editorial, J. A. M. A. **90**: 119 (Jan. 14) 1928.

[2] Cooke, W. E.: Pulmonary Asbestosis, Brit. M. J. **90**: 1024 (Dec. 3) 1927.

[3] Mills, R. G.: Pulmonary Asbestosis: Report of a Case, Minnesota Med. **13**: 495 (July) 1930.

[4] Bohrod, M. G.: Pulmonary Siderosis, Arch. Path. **10**: 179 (Aug.) 1930.

[5] London Letter, J. A. M. A. **94**: 2078 (June 28) 1930.

[6] Benedict, F. G., and Root, H. F.: Insensible Perspiration: Its Relation to Human Physiology and Pathology, Arch. Int. Med. **38**: 1 (July) 1926. Insensible Perspiration and Metabolism, editorial, J. A. M. A. **90**: 1629 (May 19) 1928.

[7] Levine, S. Z.; Wilson, J. R., and Kelly, Margaret: The Insensible Perspiration in Infancy and Childhood: I. Its Constancy in Infants Under Standard Conditions and the Effects of Various Physiologic Factors, Am. J. Dis. Child. **37**: 791 (April) 1929; II. Proposed Basal Standards for Infants, ibid. **39**: 917 (May) 1930.

[8] Levine, S. Z., and Marples, Eleanor: III. Basal Metabolism and Basal Insensible Perspiration of the Normal Infant: A Statistical Study of Reliability and of Correlation, Am. J. Dis. Child. **40**: 263 (Aug.) 1930.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:15 on Tuesday, and 10 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

November 10.	Physical Education.
November 11.	Eugene Field Poem.
November 15.	Raising Cain.

Five Minute Health Talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

November 10.	Where Do People Die?
November 11.	In Flanders' Fields — Heroes of Medicine.
November 12.	The Cigaret Causes a Stir.
November 13.	Music in Medicine.
November 14.	Music in Medicine.
November 15.	Music in Medicine.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

COLORADO

Society News.—The Larimer County Medical Society was addressed, October 1, by Dr. James A. Matlack, Longmont, on "Publicity for the Physician," and by Dr. Magnus J. Stewart, Loveland, on "Aviation Eye Tests."——The Medical Society of the City and County of Denver was addressed, October 21, by Dr. Earl J. Perkins, Denver, on "Difficulties in Varicose Vein Injections."——Dr. Alfred H. Washburn has assumed the position of full-time director of the child research council of the University of Colorado School of Medicine and Hospitals.

CONNECTICUT

Society News.—The New Haven County Medical Society held its one hundred and forty-seventh semiannual meeting at Waterbury, October 23. Addresses were given by Drs. William H. Morriss, Wallingford, on "Value of Blood Cell Study in Pulmonary Tuberculosis," and William H. Glafke, New York, "Some Mechanical Factors in the Treatment of Digestive Disorders." The speaker at the dinner was Charles S. Clark, dean of the Yale Law School, on "Can Law Be Scientific?"

Dr. Rappleye Appointed Professor of Medical Economics.—Dr. Willard C. Rappleye, New Haven, has been made associate professor of medical economics at Harvard University School of Public Health for five years from February 1. Dr. Rappleye has been director of studies of the Commission on Medical Education, New Haven, since 1925, and previous to accepting this position had been professor of hospital administration at Yale University and director of the New Haven Hospital.

Dr. Fulton Appointed Professor of Physiology.—Dr. John Farquhar Fulton was recently appointed Sterling professor of physiology and head of the physiology department at Yale. Dr. Fulton is a graduate of Harvard and Oxford universities. He was awarded the Warren Triennial Prize by the Massachusetts General Hospital in 1925, then returned to Oxford as a fellow, where he conducted research on the central nervous system. Dr. Fulton is well known for his report on "Muscular Contraction and the Reflex Control of Movement." At Yale he will be particularly concerned with studies of personality in the Institute of Human Relations, where he will be associated with Drs. Joannes G. Dusser de Barenne and Eugen Kahn, Sterling professors of physiology and psychiatry, respectively.

DELAWARE

State Medical Meeting and Election.—At the one hundred and forty-first annual session of the Medical Society of Delaware, October 14-15, at Dover, the program included papers by Drs. Gottfried Metzler, Jr., Bridgeville, on "Treatment and Prognosis of Abortion"; Carl B. Scull, Jr., Dover, "Exfoliative Dermatitis Following Use of Heavy Metals in Treatment of Syphilis"; Mark B. Holzman, Wilmington, "Value of Proper Diet in Prevention of Disease"; Samuel D. Earhart, Wilmington, "Differential Blood Count"; Arthur M. Shipley, Baltimore, "Suppurations Within the Chest"; John H. Stokes, Philadelphia, "Prevention of Infectious Transmission of Syphilis," and William F. Rienhoff, Jr., Baltimore, "Operative Treatment of Duodenal and Gastric Ulcer." Dr. Isaac J. MacCollum, Wyoming, delivered the presidential address. Dr. William Gerry Morgan, Washington, D. C., president, American Medical Association, gave an address. Dr. George C. McElfatrick, Wilmington, was elected president of the association, and Dr. William O. LaMotte, Wilmington, was reelected secretary. The next annual session will be held at Wilmington, Oct. 13, 1931.

GEORGIA

Society News.—The Fulton County Medical Society was addressed, October 16, by Dr. James L. Campbell on "A Clinical Study of Diseases of the Mammary Gland"; Dr. Bernard McH. Cline gave a clinical talk, illustrated, on "Endoscopy Under Local Anesthesia"; Dr. Rudolph A. Bartholomew presented a case report on "Pregnancy Complicated by Congenital Absence of Left Diaphragm."——The Second District Medical Society was addressed at Cairo, October 10, among others by Dr. George H. Noble, Atlanta, on "Cutting of Flaps in Amputation of Mammary Gland with View of Preventing Necessity of Skin Graft and Preserving Full Range of Arm Motion."——Dr. Samuel J. Sinkoe, Atlanta, addressed the Eleventh District Medical Society at Quitman on "Hematuria and Longevity," and Dr. Allen H. Bunce on diagnosis of abdominal conditions.

IOWA

Personal.—Dr. Wallace S. Petty, Sioux City, has been selected as director of the Woodbury County Health Unit; he has been director of cooperative health work with the Missouri State Department of Health. Woodbury County was the second unit in Iowa to adopt the full-time county health unit plan as provided under the permissive county health law. A total of $37,200 has been made available in Woodbury County for the establishment of a county health unit. It will be supervised by Dr. Erval R. Coffey of the federal public health service. The organization will cooperate with and supervise existing health and charity organizations in Sioux City and Woodbury County.——Dr. Daniel C. Steelsmith, who has been acting commissioner of health since the death of Dr. Henry Albert, was recently appointed state commissioner of health.

Society News.—Dr. Joseph C. Bloodgood, Baltimore, delivered a public lecture on cancer in Des Moines, October 17.——At a recent meeting of the Washington County Medical Society, Dr. Emmett T. Wickham, Washington, president, proposed the organization of a library for the use of members, and donated his private medical library.——The seventy-seventh annual meeting of the Dubuque County Medical Society was addressed, September 23, in Dubuque, among others by Drs. Nelson M. Percy, Chicago, on "Appendicitis and Intestinal Obstruction"; Clarence W. Baldridge, Iowa City, "Recent Development in Diseases of the Blood," and David A. Horner, Chicago, presented motion pictures on "Management of Breech Presentation."——Dr. John W. Kime, Fort Dodge, addressed the Hardin County Medical Society in Ackley, September 18, on "Light in Therapeutics."——The Polk County Medical Society was addressed, September 30, by Dr. Richard H. Jaffe, Chicago, on "Visceral Changes in Late Stages of Acquired Syphilis, with Special Reference to Syphilitic Aortitis."——Dr. Eugene F. Talbott, Grinnell, addressed the Poweshiek County Medical Society, September 18, on the thyroid gland.——The Des Moines Academy of Medicine and the Polk County Medical Society were addressed, October 28, by Drs. Walter D. Abbott and Lee Forrest Hill, both of Des Moines, on "Surgical Relief of Intractable Pain" and "Splenectomy in Children," respectively; the societies will be addressed, November 14, by Dr. Jay Arthur Myers, Minneapolis, on "Tuberculosis Among Children."——"Modern Treatment of Goiter" was the subject of Dr. Christian B. Luginbuhl, Des Moines, before the Audubon County Medical Society, October 2, and "Childhood Tuberculosis" that of Dr. John H. Peck, Des Moines.

MICHIGAN

State Section on Dermatology and Syphilology.—Dr. Cyril K. Valade, Detroit, has been selected by the executive committee of the council of the state medical society as the first chairman of the newly created section on dermatology and syphilology. Dr. Valade is president of the Detroit Dermatological Society.

Society News.—Dr. Edward L. Keyes, New York, addressed a joint meeting of the Wayne County Medical Society with the Detroit Urological Society, October 21, on "Preventable Diseases in the Treatment of Prostatism."——Dr. Frederic Schreiber, Detroit, addressed the Wayne County Medical Society, October 28, on "Encephalography as an Aid in the Diagnosis of Brain Lesions."——The Oakland County Medical Society was addressed, October 16, by Dr. Loren W. Shaffer, Detroit, on common skin diseases.——Dr. Frank C. Yeomans, New York, will address the Academy of Surgery of Detroit, November 13, on treatment of carcinoma of the rectum and sigmoid.

University Society Meeting.—The University of Michigan Pediatric and Infectious Disease Society will hold a meeting, November 14-15, at the University Hospital, Ann Arbor. "Abdominal Pain" will be discussed by Drs. William D. Lyon, Akron, Ohio, and Thomas D. Gordon, Grand Rapids; "Nutritional Anemias" by Luvern Hays and Raphael Isaacs, Ann Arbor, and "Mental Hygiene" by Theophile Raphael, Robert R. Dieterle, Louis Schwartz and Willard C. Olson, Ph.D. Among others on the program will be Drs. Floyd H. Lashmet, Ann Arbor, "Tests of Kidney Function"; Raymond W. Waggoner, Ann Arbor, "Chorea," and Malcolm H. Soule, Sc.D., Ann Arbor, "Agglutination Reactions."

Internship Required by State Board.—The Michigan State Board of Registration in Medicine has recently issued a curriculum of intern work. The board requires that each candidate for a Michigan license must present a certified statement from an approved hospital that he has satisfactorily completed this curriculum of work during twelve months serving as an intern. Each hospital is to provide during the twelve months of residency of each intern six months' service in medicine and six months in surgery. He must report at a general staff meeting on either a study of any group of hospital cases or a report of research work done in the hospital. The intern is subject to a personal rating as well as a rating on history writing. The chief of staff of the hospital must certify in writing to the board that the intern has conformed to the schedule.

MINNESOTA

Supreme Court Upholds Basic Science Law.—The constitutionality of the basic science law was upheld by the Minnesota Supreme Court in the case of the *State of Minnesota v. Broden.* The defendant, an unlicensed healer, was arrested in Duluth in December, 1929, charged with practicing the healing art without a basic science certificate. He demurred to the information filed against him on the ground that the basic science law was unconstitutional. The demurrer was overruled and he appealed to the supreme court. The court, October 10, rendered a decision holding that the law does not violate any constitutional provision, either state or federal. This is the first time that a state supreme court has passed on the validity of a basic science law. Defendant Broden will now have to stand trial on the charges against him.

MISSOURI

Survey of Bottled Water.—The division of public health engineering and sanitation has started a survey of all bottled water supplies in the state. This will include a sanitary survey of the source of water sold in containers, method of handling, and bacteriologic analyses of samples. The survey is being made as a preliminary step to enforce state board of health regulations governing bottled supplies.

Society News.—Drs. George Wilse Robinson, Jr., and Elmer D. Twyman, *Kansas City, addressed the Jackson* County Medical Society, October 21, on "Use of Glucose Solution Intravenously in Neuropsychiatric Diseases" and "Surgical Treatment of Accessible Cancer," respectively.——The St. Louis Trudeau Club was addressed, October 2, by Drs. James L. Mudd on "Chest Surgery on the Continent" and Howard H. Bell on "Present Status of Calmette's B C G Vaccine for Tuberculosis."——Dr. Oscar Monroe Gilbert, Boulder, Colo., addressed the Jackson County Medical Society, October 18, on "Progress in the Management of Tuberculosis."

NEBRASKA

Society News.—The tenth annual meeting of the Seventh Councilor District Medical Society was addressed at Hebron, October 23, by Drs. William I. McFarland, Hebron, on "Treatment of Established Infection"; George W. Ainlay, Fairbury, "Fevers of Infancy and Childhood of Idiopathic Origin"; Charles G. McMahon, Superior, "Suture of Musculospiral Nerve," with case report; James E. M. Thomson, Lincoln, "Simple Therapeutic Procedures Applied to Certain Major Fractures"; Wesley C. Becker, Lincoln, "Treatment of Puerperal Sepsis"; Alexander A. Conrad, Crete; Eugene C. Foote, Hastings, "A Visit to India and Other Foreign Countries," with motion pictures, and Karl S. J. Hohlen, Lincoln, president, state medical society, "Practical Points in Diagnosis and Treatment of Common Brain Conditions," illustrated.——Dr. Arnold C. Blattspieler, Tobias, was host to the Saline County Medical Society, October 30, at a dinner; the program included papers by Drs. John Thompson on "Treatment of Various Gastro-Intestinal Disorders"; Harry H. Everett, Lincoln, "Basic Anesthesia in Surgery, Especially in General Practice," and William O. Colburn, Lincoln, "Acute Anterior Poliomyelitis"; among other guests was Dr. Karl S. J. Hohlen, president of the state medical society.——The Dawson County Medical Society was addressed, October 4, at Cozad by *Dr. Adolph Sachs, Omaha, on diabetes.*

NEW YORK

Hospital Accounting System.—An important accomplishment of the United Hospital Fund during the year was the organization of the New York Conference on Hospital Accounting, in which nearly 100 hospitals in the city have cooperated. The system consists of the development of uniform arrangements of accounting, the standardization of statistics and records, the establishment of a more equitable basis of distribution of the money which the fund raises for its members, and the launching of a university course in hospital accounting.

Plan to Measure Efficiency of County Societies.—Dr. William H. Ross, Brentwood, president of the state medical society, at a meeting of the Third District Branch, September 9, at Albany, discussed the extent to which county societies were carrying out the policies of the state society. The following activities promoted by the state society were considered: reporting meetings in the journal; giving courses in graduate education; making public relations survey; county laboratories; county tuberculosis hospitals and county public health nurses. The two societies having the fewest members reported the greatest number of meetings during the past five years, while societies having the largest membership and the most regular meetings had not made a single report of their meetings to the journal. Dr. Ross plans to chart activities of the eight district societies for publication in the state journal. The scientific program of the third district meeting consisted of talks by Dr. Max M. Peet, Ann Arbor, Mich., on "Head Injuries," and Dr. Burton J. Lee, New York, "Surgery and Irradiation in the Treatment of Cancer."

New York City

Hospitals Aided by Convalescent Homes.—According to a statement of the Hospital Information and Service Bureau of the United Hospital Fund in *New York Medical Week*, increasing importance is attached to the work of sixty-eight convalescent homes serving New York City on account of abnormal demands on hospitals through the current period of unemployment and business depression. The bureau notes increasingly heavy demands for free accommodations in hospitals, so that their facilities and budgets are seriously taxed. To help meet this situation, the work of the convalescent institutions is being stimulated and coordinated. The bureau serves as a clearing house for information about hospitals and for the receipt of applications for service in convalescent institutions.

Society News.—The program of the October 27 meeting of the Medical Society of the County of New York consisted of talks on puerperal mortality and its possible reduction by Drs. George W. Kosmak; John O. Polak, Brooklyn, who described the routes of infection following birth injuries, and John Whitridge Williams, Baltimore, who presented a clinical consideration of the deaths from puerperal infection that occurred in Johns Hopkins Hospital during the past ten years.——Dr. Frank Billings, Chicago, gave the first of a series of afternoon lectures to the physicians of Harlem, October 23, in the Association of Trade and Commerce Building, on "The Need and the Outlook for the Continuing (Postgraduate) Education of the Negro Physician in America." This is a part of the program for graduate medical instruction sponsored by the North Harlem Medical Society.——The New York Roentgen Society and the New York Academy of Medicine were addressed at a joint meeting, October 20, by Dr. Coleman B. Rabin on "Pulmonary and Pleural Tumors—Correlation of Roentgenologic and Pathologic Findings"; demonstration of specimens and slides.——Dr. Foster Kennedy delivered the first of the series of afternoon lectures at the New York Academy of Medicine, November 7, on "Epilepsy and the Convulsive State"; the second lecture will be given by Dr. Frank H. Lahey, Boston, November 14, at 4:30, on "Carcinoma of the Colon," and November 21, by Dr. George Gray Ward, Jr., "Treatment of Pelvic Infections."

NORTH CAROLINA

Society News.—The Ninth District Medical Society was addressed at Salisbury, September 25, among others, by Drs. David S. Asbill, Statesville, on "Some Observations on Bronchoscopy," and Charles W. Armstrong, Salisbury, "Home Treatment of Tuberculous Children." Banquet speakers were Drs. James K. Hall, Richmond, Va., on "The Physician as Community Counselor"; John T. Burrus, High Point, "The Importance of Organized Medicine."——Among other speakers at the October 9 meeting of the Eighth District Medical Society at Greensboro, were Drs. Robert E. Smith, Mount Airy, "The General Practitioner's Aid to Nature in Obstetrics," and Marion Y. Keith, Greensboro, "Ramblings About Pellagra."

PENNSYLVANIA

Society News.—The principal address of the annual Mercy Day at Mercy Hospital, Pittsburgh, September 24, was delivered by Dr. Frank Norman Wilson, Ann Arbor, Mich., on "Cardiac Weakness and Cardiac Failure."——Dr. Robert A. Knox, Washington, addressed the Washington County Medical Society, October 15, on "Hypertrophic Stenosis of the Pylorus."

Personal.—Dr. Jacob P. Strayer, Oil City, was honored, September 26, at the meeting of the Venango County Medical Society on the completion of fifty years in the practice of medicine.——Dr. Henry E. Austin, Upper Darby, has been appointed by the District of Columbia commissioners chief resident psychiatrist at the Gallinger Hospital, Washington, which is a new position.

State Medical Election.—At the annual meeting of the Medical Society of the State of Pennsylvania, October 6, Dr. Ross V. Patterson, Philadelphia, was installed as president; Dr. William H. Mayer, Pittsburgh, was made president-elect, and Dr. Walter F. Donaldson, 8103 Jenkins Arcade, Pittsburgh, reelected secretary. The next annual session will be held at Scranton, Oct. 5-8, 1931.

Philadelphia

Dr. McKenzie Retires as Professor of Physical Education.—At the recent celebration of medical progress at the University of Pennsylvania, it was announced that Dr. Robert Tait McKenzie would retire as professor of physical education and physical therapeutics on the completion of a survey of student health. Dr. McKenzie will retain an affiliation with the university, his position to be announced later. He will devote most of his time to sculpture, in which work he is widely known. He was sculptor of the Franklin Statue at the university, the Scottish-American War Memorial at Edinburgh, and the War Memorial in the Parliament Building at Ottawa.

Dr. Tucker Becomes Professor of Bronchoscopy.—Beginning with the session of 1930-1931, Dr. Chevalier Jackson became emeritus professor of bronchoscopy and esophagoscopy in the Graduate School of Medicine of the University of Pennsylvania and consultant to the Graduate Hospital of the University of Pennsylvania. Dr. Jackson will continue his special courses of instruction in the Graduate School of Medicine. At the same time Dr. Gabriel Tucker, formerly associate professor, became professor of bronchoscopy and esophagoscopy in the Graduate School of Medicine and in charge of the Chevalier Jackson Bronchoscopic Clinic of the Graduate Hospital of the University of Pennsylvania. Dr. Jackson resigned from the University of Pennsylvania about a year ago to devote his time to the development of a bronchoscopic clinic at the Samaritan Hospital and to his professorship at Temple University School of Medicine.

Galen's Birth Commemorated.—The College of Physicians of Philadelphia held a meeting, October 23, to commemorate the anniversary of the birth of Galen, the greatest Greek physician after Hippocrates, and the founder of experimental physiology. Galen was the most voluminous of all ancient writers. After his death European medicine remained at a level for nearly fourteen centuries. Galen's work included nine books on anatomy; seventeen on physiology; six on pathology; sixteen on the pulse; the Megatechne, or therapeutics (fourteen books); the Microtechne, or practice, and thirty books on pharmacy. At the College of Physicians' commemoration, ninety-three copies of the ninety-eight Galen publications, the property of the college library, were on exhibition. The meeting was addressed by Drs. William H. Welch, Baltimore; Charles W. Burr, Philadelphia; Burton Chance, Philadelphia, and Giuseppe Franchini, Bologna, Italy.

TENNESSEE

Society News.—The Nashville Academy of Medicine was addressed, September 30, by Dr. Lucius E. Burch on "Uterine Bleeding." Dr. Rogers N. Herbert, Nashville, addressed the academy, October 21, on "Reflex Pain with Reference to Rectal Pathology."——Dr. James P. Taylor addressed the Bedford County Medical Society, September 18, on "Endocrine Disturbances."——"Duodenal Ulcer" was the subject of Dr. Estill E. Caudill, Elizabethton, before the Carter County Medical Society, September 2.——Dr. Charles E. Evans, Tullahoma, addressed the Coffee County Medical Society, October 13, on "Artificial Feeding of Babies."——The Davidson County Medical Society was addressed, September 23, by Dr. Jefferson C. Pennington, Nashville, on "The Significance of Urethral Discharge in the Male"; the society was addressed, October 14, by Dr. Barney Brooks, Nashville, on "Congenital Pyloric Stenosis."——Among others addressing the Knox County Medical Society, September 25, were Drs. Drew W. Luten, St. Louis, on "The Clinical Use of Digitalis," and William W. Potter, Knoxville, "The Eye as a Diagnostic Medium."——The Memphis and Shelby County Medical Society was addressed, September 2, among others, by Dr. Cecil D. Gaston, Birmingham, on "Etiology, Diagnosis and Management of Fistula in Ano."

UTAH

State Medical Election.—At the annual meeting of the Utah State Medical Association, September 10, Dr. William L. Rich, Salt Lake City, was installed as president; Dr. Richard A. Pearse, Brigham, was made president-elect, and Dr. Maurice M. Critchlow, Salt Lake City, reelected secretary. The next annual session will be held at Salt Lake City, Sept. 9-11, 1931.

VERMONT

State Medical Meeting and Election.—At the one hundred and seventeenth annual meeting of the Vermont State Medical Society in Burlington, October 2-3, Drs. Frank R. Ober, Boston, spoke on "Operative and Postoperative Treatment of Infantile Paralysis"; John F. Gile, Hanover, N. H., "Some Aspects of Pancreatic Surgery"; Mervin C. Myerson, New York, "Diagnosis and Treatment of Lung Conditions by Means of Bronchoscopy"; Clarence H. Beecher, Burlington, "Diagnosis and Treatment of the Cardiac Arrhythmias"; George H. Bigelow, Boston, "Can Communicable Disease Be Controlled?" and George R. Anderson, Brattleboro, "Hypertrophy of the Prostate from the Standpoint of the General Practitioner." A symposium on traumatic surgery was also conducted. Dr. William M. Johnstone, Morrisville, was elected president of the association for the ensuing year, and Dr. William G. Ricker, 31 Main Street, St. Johnsbury, reelected secretary. The next annual meeting will be in Rutland, in October.

WISCONSIN

Propose Compensation for Automobile Accidents.—An attempt will be made in the coming legislature to enact an automobile accident compensation law similar to the present industrial law. It has been shown that three times as many people are hurt in automobile accidents as in industrial accidents. The proposed law would provide that people killed or hurt in motor car accidents would get compensation regardless of the question of negligence. It is said that compulsory liability and insurance do not adequately meet the need for financial protection in auto accidents.

Society News.—The Third Councilor District Medical Society was addressed, October 17, among others, by Drs. James H. Mitchell, Chicago, on "Recent Advances in Diagnosis and Treatment of Malignancy of the Stomach," and Joseph L. Miller, Chicago, "Monilia Infection of Skin and Mucous Membranes."——Dr. Francis D. Murphy, Milwaukee, addressed the Winnebago County Medical Society, October 17, on cardiorenal disease with especial reference to hypertension.

—The Chippewa County Medical Society conducted a symposium on the diseases of the gallbladder, October 14; among the participants were Drs. Joseph Gale and Ray C. Blankinship, Madison.——"The Current Attitude Regarding Epilepsy, Its Nature and Rational Treatment" was the subject of Dr. Albert W. Bryan, Madison, before the Marinette-Florence County Medical Society, October 9.——Dr. William B. Castle, Boston, addressed the University of Wisconsin Medical Society, October 23, on "Relationship of Achylia Gastrica to Pernicious Anemia."

CANADA

Changes at University of Western Ontario.—The following changes, among others, have recently been announced at the University of Western Ontario Medical School, London.

Dr. Henry Alan Skinner to associate professor of anatomy.
Dr. Madge T. Macklin to assistant professor of histology and embryology.
Dr. Russell A. Waud to associate professor of pharmacology.
Dr. John H. Fisher to professor of bacteriology.
Dr. Albert J. Slack to associate professor of public health.
Dr. Frank R. Clegg to associate professor of obstetrics and gynecology.
Dr. William P. Tew to associate professor of obstetrics and gynecology.

Society News.—A special study is being made by the eye, ear, nose and throat section of the Winnipeg County Medical Society cooperating with the department of health and public welfare, for the reduction and possible eradication of trachoma in Manitoba.——The Vancouver Medical Association was addressed, October 7, by Dr. Maurice F. Dwyer, Seattle, on "Interpretation of Gastric Symptoms," a clinical and roentgenologic study of 3,000 cases; Drs. James G. McKay and Arthur L. Crease, Essondale, B. C., addressed the society, November 4, on "Early Recognition and Treatment of Psychoses"; the speakers, December 2, will be Drs. Edward H. Saunders and N. E. MacDougall, "Early Recognition of Acute Mastoiditis" and "Treatment of the Common Cold," respectively.

Physicians for Rural Districts.—The problem of medical care in sparsely settled areas in Saskatchewan is being solved by the operation of the rural municipal act passed about a year ago. This gives every municipality the right to make a grant up to $1,500 annually to a legally qualified medical practitioner who is a resident or is easily accessible on call, or it may guarantee his income to that figure. The municipal physician must give free medical service to indigents and perform the necessary duties of a health officer. On demand of twenty-five taxpayers, the council must submit a by-law to the electors empowering the council to engage a physician for full-time service at a salary not exceeding $5,000 a year. Of Saskatchewan's 866,700 people scattered over 251,700 square miles, 14.4 per cent live in the eight cities; 7.7 per cent in the eighty towns; 2.9 per cent in unorganized territory, and 1.3 per cent are Indians on their reservations. This gives an extensive area needing medical service which now has little appeal to young physicians seeking to earn an immediate livelihood. Under this cooperative health measure, it is reported, there are thirteen rural municipalities paying medical grants of from $900 to $1,500 annually. Nineteen other municipalities have engaged municipal physicians at salaries varying from $3,500 to $5,000 a year. The system guarantees a reasonable income to the physician and gives the settlers a needed medical service.

Department of Public Welfare Created.—On recommendation of the Royal Commission on Public Welfare in Ontario, Premier Ferguson has announced the creation of a department of public welfare with Hon. W. G. Martin as minister. The commission advises that public funds finance the general hospitals, which now receive for indigent patients a grant of 60 cents daily per patient from the province, and $1.75 daily per patient from the municipality. The total general hospital revenue last year was $10,140,782. The commission emphasized the need of a government owned psychiatric hospital and to assist institutional schools in caring for Ontario's 6,000 crippled children, 2,000 blind and 3,000 deaf and dumb persons, recommended the division of the province into ten districts, in each of which will be stationed a graduate nurse or social worker supervised by a special government officer. It was recommended that the raising of funds to effect other recommendations of the commission should be patterned after the Quebec plan, in which more than $600,000 is raised annually by a hospital tax of 5 per cent of the cost of all meals over $1, levied in hotels and restaurants. Among the recommendations was one which advised that a special conference of medical men be convened to study cancer treatment and that the province establish a cancer hospital and purchase a supply of radium. Emphasis was laid on the need of preventive clinics, provisions for occupational training for convalescents, and aid in the rehabilitation of tuberculous patients on discharge.

GENERAL

Guides for Graduate Study.—The New York Academy of Medicine has published booklets to aid visiting medical men. "The Synopsis of Approved Opportunities for Postgraduate Medical Study in the Clinical Specialties" lists courses and residencies. "Opportunities for Postgraduate Medical Study Offered in New York City" has been revised to include a map showing important hospitals, facilities which the academy offers to visiting medical men, approved courses and residencies, fellowships, nonoperative clinics and conferences, clinical and pathologic conferences and ward rounds. Copies of the foregoing may be obtained from the New York Academy of Medicine, Fifth Avenue and One Hundred and Third Street, New York.

Posing as Physician's Son.—On July 28 a well dressed young man called at the office of Dr. William Gerry Morgan, Washington, D. C., and introduced himself as Charles Albert Perkins, Jr., the son of a classmate and close friend of Dr. Morgan. He stated that he had met with an automobile accident in Maryland, had been arrested and fined, and was in need of money to get him back to the Cleveland Clinic, where he was an intern. Dr. Morgan lent him $50, which he promised to return soon. Not having heard from him, Dr. Morgan recently wrote to the Cleveland Clinic asking if such a young man was attached to their staff. The reply came that there was no such young man there nor had there ever been one of that name.

Dr. Landsteiner Wins Nobel Prize.—Dr. Karl Landsteiner, bacteriologist and pathologist on the staff of the Rockefeller Institute for Medical Research, New York, has been awarded the Nobel Prize for Medicine. Dr. Landsteiner was born in Vienna, graduated at the University of Vienna in 1891, and was pathologist there from 1909 to 1919. He has been a member of the Rockefeller Institute for Medical Research since 1922. The prize amounts to about $48,000. The award was based on Dr. Landsteiner's research in connection with blood groups. He is known also for his research on infantile paralysis, paroxysmal hemoglobinuria, and blood serum in relation to immunity. The only other American to have received the Nobel Prize for Medicine was Dr. Alexis Carrel, to whom it was awarded in 1912.

New Veterans' Hospitals.—Sites for several of the nine new veterans' hospitals involved in the veterans' bureau construction program have been chosen. The hospital for Alabama will be located near Tuscaloosa; it is to contain 250 beds, will be erected at a cost of $1,100,000, and will include accommodations for a regional office. The hospital for western New York, to be located near Canandaigua, will have 400 beds and will be built at a cost of $1,700,000. The West Virginia hospital, with a 125 bed capacity and to cost $700,000, will be located near Huntington. The New Mexico Hospital will be a general hospital with 250 beds to cost $1,250,000 and will be located near Albuquerque. Facilities for the regional office and 200 beds for general medical and surgical patients will be provided for in the new hospital to be erected at a cost of $1,000,000 in New York City.

Society News.—At the annual election of officers of the American Protestant Hospital Association, October 20, in New Orleans, Dr. Benjamin A. Wilkes, Los Angeles, was installed as president.——Dr. Argus D. Willmoth, Louisville, Ky., was elected president of the American Physical Therapy Association at its annual meeting, October 9, and Dr. Cadwallader C. Vinton, 1650 Broadway, New York, reelected secretary.——Dr. John E. Jennings, St. Louis, was elected president of the Frisco System Medical Association at its annual meeting in Springfield, Mo., October 10-11, and Dr. Robert Vinyard, St. Louis, reelected secretary.——The first Mexican Congress on the Prevention of Blindness was held in Mexico City, November 1-6, under the auspices of the departments of public education and public health and of the National University of Mexico City. Papers were read on leprosy, cancer, tuberculosis, alcoholism, syphilis and the venereal diseases. The president of the congress was Dr. Daniel M. Velez.

LATIN AMERICA

Cancer Award Announced.—It was announced recently that the Uruguayan Association Against Cancer had voted an annual prize of 1,500 pesos for the best scientific study on human cancer, the award being made on the recommendation of a jury of six specialists appointed by the association. To be considered, a work must be entirely original, representing an experimental study on the etiology, pathogeny, early diagnosis or treatment of the disease, and possess positive value as a contribution to knowledge on the subject. Any Uruguayan is eligible to compete for the award.

FOREIGN

Prize for Method of Detecting Mustard Gas.—The International Red Cross Committee at Geneva has announced that the international competition for the discovery of a reagent for the detection of mustard gas in the air, which was started July 1, 1929, is to close December 31. The prize offered is 10,000 Swiss francs (£400). Information concerning the competition may be obtained from the International Red Cross Committee, 1, Promenade du Pin, Geneva.

Investigation of Standardization of Drugs.—The governor general of India has appointed a committee to inquire into the extent to which drugs and chemicals of impure quality or defective strength are imported, sold or manufactured. The committee is to recommend legislative measures that would restrict the profession of pharmacy to duly qualified persons. It will visit important centers in the provinces to get evidence concerning drug standardization. The secretary is Lieut. Col. R. N. Chopra, I. M. S., School of Tropical Medicine and Hygiene, Calcutta.

Opening of Lockyer Collection.—The annual prize distribution and inaugural address at Charing Cross Hospital Medical School, October 4, was preceded by the opening of the Lockyer collection of obstetric and gynecologic specimens in the museum. The collection numbers nearly 2,000 specimens and is suitably housed in a large hall; it is the gift of Dr. Cuthbert Lockyer, consulting obstetric physician to the hospital. The gift, made in the centenary year of the school, is considered one of the most important collections that have been brought together by one person since the days of John Hunter, whose collection was said to be the basis of that of the Royal College of Surgeons.

Insurance Medical Service in England.—The extent and cost of insurance medical service in England for 1929 recently reported by the minister of health showed that 14,600 physicians were engaged in insurance practice. The number of insured persons entitled to medical benefit was a little over 14,000,000. The cost of their service was £8,666,000. Medicines and appliances were supplied as a part of medical benefit by about 9,000 chemists' shops. Of the total cost of medical benefit £6,256,000 were given to panel physicians and £1,922,800 was paid to panel chemists for the supply of drugs and appliances. About £200,000 was paid to country practitioners for mileage, that is, in practices in which the physical conditions were such that distances covered were not in themselves a fair measure of the physicians' difficulties. Nearly £10,000 was set aside to enable country practitioners to attend courses of graduate study and to provide them with facilities of telephones, motor cars and branch surgeries; £194,800 was allotted to physicians for medicines and appliances used in emergency treatment for their medicines dispensed in districts where patients were out of reach of chemists.

Rural Health Experiment in China.—Ting Hsien is a typical Chinese county selected for the health program to be financed by the recent donation of $50,000 by the Milbank Memorial Fund. The announcement follows closely on the news from Geneva that the League of Nations will support and cooperate in attempts to modernize China's health service despite that country's seeming preoccupation with civil war, her chaotic political situation and seriously disturbed industrial condition. The experiment is part of the Chinese National Association of the Mass Education Movement. It is of pioneer importance in applying modern scientific knowledge to a population which has an annual death rate of approximately 30 per thousand at an average expectancy of life at birth of only thirty-five years. Ting Hsien has one city of 80,000 population; sanitation is unknown and conditions of living are almost unbelievably primitive. Over 90 per cent of the people are illiterate. The mass of the population live in villages in mud huts. In the whole county of 400,000 people there is not a qualified modern trained physician.

Deaths in Other Countries

Prof. Henri Delagenière, LeMans, France, suddenly on September 30, in Royan, France; he had been known for work on osteoperiosteal grafts.——**Major General Sir Neville Howse**, minister of health and repatriation of the Australian commonwealth since 1925, in London, September 19, aged 67.

Government Services

Army Personals

Major Samuel E. Brown to duty at Mather Field, Calif.; Major Guy D. Griggs to duty at Kelly Field, Texas; Major Thomas L. Gore, in addition to his other duties is assigned as flight surgeon; Lieut. Ralph Vernon Plew to duty at the Walter Reed General Hospital, Washington, D. C.; Major John W. Watts will sail from New York for the Philippine Department about January 13; on arrival at Manila, he will report to the commanding general for assignment to duty with the medical corps; Lieut. Edward James Kendricks, to duty at Fort Leavenworth, Kan.; Major Robert B. Shackelford, Fort George G. Meade, Md., will proceed to his home and await retirement for the convenience of the government; Capt. John P. Russell, relieved at the Panama Canal, Canal Zone, and on completion of present tour of foreign service is assigned to Mather Field, California; Major James E. Ash will sail from New York about February 17 for San Francisco for duty in the Letterman General Hospital; Major Virgil H. Cornell relieved at San Francisco and assigned to duty at Army Medical School, Washington, D. C.

Surgeon General Ireland Reappointed

President Hoover has approved a recommendation of Secretary of War Hurley that Major Gen. Merritte W. Ireland be reappointed surgeon general of the army, effective October 30. This is the fourth appointment of Major General Ireland as surgeon general. In determining to permit him to finish his active army service in his present office, the President made an exception to the general rule against reappointments for the heads of branches and bureaus. General Ireland will reach the retiring age, May 31. He was first appointed surgeon general of the army, Oct. 30, 1918. He had previously served as chief surgeon of the American Expeditionary Forces and also as surgeon general. He was reappointed surgeon general, Oct. 30, 1922, and again, Oct. 30, 1926.

U. S. Public Health Service

Surg. William H. Slaughter, relieved at marine hospital, Cleveland, about October 10, and assigned to duty at Memphis, Tenn., in charge of the marine hospital at that place; Surg. R. L. Allen, relieved at Memphis and assigned to duty at marine hospital, Fort Stanton, New Mexico, in charge of the hospital; Acting Asst. Surg. J. E. Smith, relieved from duty at Knoxville, and assigned to duty at trachoma hospital, Rolla, Mo.; Surg. Herbert A. Spencer, directed to assume charge of the work at the immigration station on Angel Island, Calif., in addition to duties as medical officer in charge of the U. S. Quarantine Station at Angel Island; Medical Director Dana E. Robinson, assigned to duty in the office of the American Consul General, Quebec, Canada; Asst. Surg. Fred W. Kratz, assigned to duty at the U. S. Marine Hospital, Stapleton, N. Y.; P. A. Surg. Alfred J. Aselmeyer, assigned to duty at the Federal Penitentiary Annex, Fort Leavenworth, Kan.; P. A. Surg. William H. Gordon, assigned to duty at marine hospital, Key West, Fla.; Senior Surg. Friench Simpson, relieved at Oslo, Norway, and assigned to duty at Dublin, Irish Free State; Senior Surg. Randolph M. Grimm, relieved at Dublin, Irish Free State, and assigned to duty at Ellis Island, N. Y.; the following physicians were promoted and commissioned as passed assistant surgeons in the regular corps of the service: Hiram J. Bush, Houston G. Foster, Samuel J. Hall, Edgar W. Norris, Jr., Donald P. Ross and Aubrey E. Snowe.

The Government Needs Physicians

The U. S. Civil Service Commission states that government hospitals throughout the country, including those under the veterans' bureau, the public health service, Indian service, and other branches, are in need of medical officers and nurses of various grades, and that veterans' bureau hospitals have vacancies in positions of psychiatric social worker and junior social worker. Full information regarding examinations, salaries, and so forth, may be obtained from the U. S. Civil Service Commission, Washington, D. C., or from the secretary of the U. S. Civil Service Board of Examiners at the postoffice or customhouse in any city.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 18, 1930.

Report of Radium Commission

The appointment by the government of the radium trust and the radium commission has already been described (The Journal, Nov. 16, 1929, p. 1572, and Dec. 14, 1929, p. 1899). The radium treatment of malignant disease was considered so important that a fund of $1,500,000 was formed by public subscription and the contribution of $500,000 by the government. The body of national trustees which buys radium and controls its custody is the radium trust. Its work is directed by the radium commission, which makes arrangements for the equitable distribution and full use of this radium, both for treatment and for research. The trust and the commission have now issued their first annual report. March 31, the trust had 9,215 Gm. of radium, which cost $473,000. An agreement was made with the Union Minière du Haut Katanga for the purchase of radium at $50 a milligram, which is considerably below the current market price, in consideration of the fact that the trust was purchasing for a central national stock. The union also placed at the disposal of the trust a bomb of 4 Gm. on loan free of charge for three months with option of purchase. This bomb was purchased in February for $207,000. In March the commission recommended the acquiring of a supply of radium for the preparation of radon, for which 3 Gm. was bought. In the use of radium the commission has carried out a policy of concentration, restricting the distribution to places possessing a university with a medical school. Only one hospital—nominated by the medical faculty of the local university and approved by the commission—is recognized as the national radium center for the area concerned. Only in this way was it thought practicable to retain effective control over distribution and use, and experience has so far justified the decision.

SCHOOL OF RADIOTHERAPY

The commission considers that the need for a large number of physicians fully qualified to practice radiotherapy is at least as urgent as an increased stock of radium, and it has been much impressed by the lack of adequate facilities for the teaching of this all-important subject. One of its first preoccupations has therefore been the creation of a national postgraduate school of radiotherapy in London. It was evident that the scale, equipment and operation of an adequate center was beyond the resources of any existing teaching hospital, while, on the other hand, it was felt undesirable that the new school should have to wait for the projected empire postgraduate medical college or become absorbed in it. The commission came to the conclusion that the best solution would be the cooperation and, if practicable, the amalgamation of two existing institutions—the Mount Vernon Hospital at Northwood, Middlesex, and the Radium Institute in London. An arrangement has been made whereby the main clinical and pathologic work of the joint institution will be carried out at Mount Vernon, while the diagnostic and outpatient department, with a proportion of the surface therapy work, will be centered at the Radium Institute, which will also be the principle center for the supply of radon. The total amount of radium allocated to the joint center will be: Mount Vernon Hospital, 3 Gm. for clinical work; Radium Institute, 1 Gm. for radon. This will be in addition to the existing supplies of the two institutions. The postgraduate school has been inaugurated and a comprehensive course of instruction has been approved.

THE POSTPONED VERDICT ON RADIUM TREATMENT

The conclusion reached by the commission is that great caution is necessary in estimating the value of radium in the treatment of malignant disease and it deprecates the creation of false hopes by sensational and even optimistic statements. As a result of world experience extending over many years, the best that can be said is that some results under certain conditions are satisfactory while others, for no clearly established reasons, are less so, and that in a considerable proportion of cases the results are inconclusive or disappointing. But this does not justify a pessimistic outlook, as many problems yet unsolved may yield to experience and research. But time is an essential condition of success and only after several years of pioneer work can there be sufficient data for positive conclusions. The commission has therefore made its first duty to organize a concentrated and controlled national radium service, of which the progress and results will be recorded after a uniform system. Finally, the commission feels bound to repeat its warning that radium is not yet established as a "cure for cancer"; that while it holds out good promise of beneficial results, and certainly of alleviation of suffering, it is at present a dangerous weapon and one which, unless used with the greatest skill, care and caution, may easily be productive of more harm than good. This is the considered opinion of the commission as the result of its first year's work; but at least five years' further experience and coordinated research will probably be required before any final verdict can be anticipated.

A Survey of Population: Continued Decline of the Birth Rate

The registrar-general's statistical review for 1929, just published, shows that the estimated population of Great Britain and Ireland was 48,684,000, compared with 48,574,000 in 1928, an increase of 110,000, or 0.23 per cent. Taking the constituent parts of the British Isles separately, there was an increase in England and Wales and a decrease in Scotland and the Irish Free State. The estimated population of England and Wales in 1929 was 39,607,000, against 39,482,000 in 1928, an increase of 125,000, or 0.32 per cent. For Scotland the figures are 4,884,000 and 4,893,000, a decrease of 9,000, or 0.18 per cent; for the Irish Free State 2,943,000 and 2,949,000, a decrease of 6,000, or 0.2 per cent. The marriage rate for England and Wales during 1928 was 15.8 per thousand living and was the highest since 1921. The number of divorces was 3,396 against 4,018 in 1928, a decrease of 15.5 per cent. The birth rate was 16.3 per thousand of population, against 16.7 in 1928, thus continuing the steady fall of recent years. The proportion of male to female births was 1,043 to 1,000, a close approximation to that in recent and prewar years. The maximum was 1,060 to 1,000 in 1919.

Spahlinger Again

In The Journal, Dec. 15, 1928, page 1904, the concerted attempts in the press to boost Spahlinger's secret "cure" for human tuberculosis were described. The exposure of his pretensions by one newspaper, the *Daily Express*, seems to have stopped this. The paper sent a special correspondent to Geneva, who found that while a large income was being derived from patients at the Spahlinger Institute there were many failures, of which nothing was said in the roaring propaganda. Moreover, the *Express* offered to pay $50,000 toward Spahlinger's work on condition that he would allow a committee of experts to examine and report on it; but he refused. Then Spahlinger turned his attention to animals and promoted a company in this country for their treatment by means of his vaccines. Note that it is always in England, never in his native Switzerland, that Spahlinger tries to exploit his vaccines. He has bobbed up again in this country. This time he does not seem to have received any backing from the ordinary press, but the organ of the labor party, the *Daily Herald*, has a column devoted to his methods and adorned with his portrait and a microscope "in his laboratory." Under captions such as "Safe Milk" and

"Anti-Infection Hope for Babies," we are told that "experiments are being carried out with cattle on a Norfolk farm under a veil of secrecy. In about three months the experiments will be completed. Then it is likely that M. Spahlinger will issue a full report."

ITALY

(From Our Regular Correspondent)

Sept. 30, 1930.

International Congress on Malaria

The Second International Congress on Malaria was held in Algeria. Representatives from thirty-eight countries attended, and Professor Lutrario, president of the Commissione malariologica della Società delle Nazioni, was the head of the Italian delegation.

Before the section on parasitology, Dr. G. Raffaele of Rome spoke on the classification of the plasmodia found in birds. Owing to the impossibility of transmitting human malaria to animals, and by reason of the resemblance between malaria parasites of birds and those of man, research carried out with birds may be applied to man. The speaker was able to distinguish, in Italy, two types of plasmodia in birds—namely, *Plasmodium praecox* of Grassi and Feletti and *Plasmodium majus,* which was differentiated by Raffaele himself. Usually the two species are associated.

Before the section on entomology, Professor Franchini of Bologna presented a paper on the anopheline fauna of the Italian colonies.

Addressing the section on epidemiology, Drs. Missiroli and Hackett of Rome mentioned the spontaneous disappearance of malaria in zones surrounded by malarial territory and infested, at the time, with *Anopheles maculipennis.* The speakers, who have done research in various malarial localities, deny that the widespread use of quinine has suppressed the carriers of gametocytes. It seems plausible to assume that there has been a diminution in the relations between anopheles and man as a result of the increase in the number of stabled animals. Animals have an attraction for anopheles and thus they are diverted from man. It may be noted also that zoophilism in anopheles develops slowly, over a period of years.

In the section on clinical pathology, Mazzolani of Tripoli spoke on the relations between tuberculosis and malaria, and expressed the view that the relations vary with the stage of the tuberculosis and with the nature of the malarial infection. Sometimes a complete antagonism may exist between the two diseases.

Addressing the section on prophylaxis, Dr. Jandolo explained the new trends of Italian legislation in regard to health movements. Professor Lutrario spoke of the work of the commission on malaria of the League of Nations, which has made investigations and epidemiologic research in various countries, and has promoted the training of technical personnel in the schools of Hamburg, London, Paris and Rome. The speaker pointed out that Italy had shown great activity in the malaria crusade through (1) increasing the supply of the specific remedy by the governmental administration of quinine and the creation of plantations of Cinchona in Java and in Eritrea, (2) the training of technical personnel, and (3) the redemption of malarial regions by drainage.

The Death of Professor Fano

The death of Prof. Giulio Fano, senator, director of the Istituto di Fisiologia Generale of the University of Rome, at Mantua, his native city, September 27, after a brief illness, is announced. Born in 1856, he graduated at Turin at an early age and soon thereafter took up the study of physiology. When scarcely 28 years old, he was called to the chair of physiology at the University of Genoa. In 1894 he succeeded Luciani at the University of Florence, and in 1917 he became director of the Istituto di fisiologia generale at the University of Rome, which post he held up to the time of his death. He was the author of many works through which his name was known throughout the world. Among his chief works are those on coagulation of the blood and the behavior of peptonized blood and lymph; also on the inhibitory brain centers. His studies on the thyroid class him among the pioneers in endocrinology. The work entitled "Brain and Heart," which has been translated into French and English, gives a series of lectures that Professor Fano held at the University of Barcelona, and contains an exposition of his principal discoveries in the field of physiology. He was founder of the journal *L'Archivio di fisiologia,* was a member of the Accademia dei lincei and of many other learned societies, and had received the title of "senator" (1911). Among his pupils may be mentioned Professors Bottazzi, Herlitzka, Ducceschi, Rossi and Spadolini, who occupy chairs of physiology in the universities of Naples, Turin, Padua, Florence and Siena.

The Records of Medical Aid to Children

The ministry of the interior has issued instructions that all institutions furnishing aid and sanitary prevention for the young shall cooperate in the defense against social diseases, especially tuberculosis. Aid shall be given not only to the larger communities but also to the rural districts. The point of departure of such activity shall be the medical examination of the children at an early date and repeated from time to time. For each child examined a record-book shall be made out, which must be kept up to date, with an account of diagnoses and forms of treatment and the results. Also statements in regard to accidents suffered must be recorded. In addition, for each child a so-called biotypologic record-card will be made out, the chief purpose of which is to follow the child through the various cycles of his development. A number of "official physicians" will be appointed to provide medical aid for the young.

Visit of American Physicians

About one hundred American physicians, members of the Postgraduate Medical Association of North America, visited recently the principal clinics of Rome and Florence. Some were general practitioners, some were surgeons and some were specialists. They attended lectures in Rome on surgery and urology, internal medicine, neuropathology and psychiatry, and the like, and participated in operative sessions in various clinics. They visited also the Mussolini institute for the prevention and treatment of tuberculosis and attended lectures and operations in thoracoplasty. From Rome they proceeded to Florence to visit the clinics at the university.

Compulsory Insurance for Health Officers

According to a recent law, the obligation of being insured in the Cassa di previdenza was extended (as of Jan. 1, 1930) to all health officers of the provinces and the communes. These physicians and their dependents are thus entitled to receive social and financial aid. Orphans of health officers are entitled to aid and to instruction in the Istituto per gli orfani dei sanitari, located in Perugia.

Latin as the Language of Medical Science

Prof. Cesare Orsali of Rome is carrying on a campaign in the medical press in favor of the adoption of the Latin language as the official idiom of medical science in all civilized countries. Professor Orsali has suggested that, in order to bring about a realization of this idea, an international medical congress be organized at which Latin shall be the sole official language, and that a medical journal employing only the Latin language be published, to which the scientists of all countries would be invited to contribute articles.

The Address of Dr. Rosenow

Through the initiative of the Federazione stomatologica italiana, Dr. Edward C. Rosenow of Rochester, Minn., delivered in the amphitheater of the Clinica odontoiatrica in Rome an address on "Clinical and Experimental Studies on the Selective Localization of Streptococci." Dr. Rosenow illustrated, with *numerous lantern slides, the* results of fifteen years of experimental work directed toward the reproduction in laboratory animals of disease of various organs, developing in consequence of intravenous injections of cultures of streptococci derived from foci of infection originating chiefly from devitalized human teeth. From these teeth, extracted from persons who were suffering from a distant focal infection and who were cured as a result of the extraction, cultures of streptococci were obtained. When injected into animals, these develop the same disease from which the patient suffered, as a result of the localization of microorganisms in the corresponding organs. These results throw light on the pathogenesis of certain obscure conditions and show the responsibility of the dentist, whose work, if not conducted with the proper asepsis, may provoke in the teeth conditions that are reflected in other organs, thus compromising the health of the patient.

Examinations for the Doctorate in Medicine

The faculty of medicine of the University of Milan has submitted to the ministry of public education a number of proposals pertaining to the practice of medicine and surgery. According to the present regulations, the university statutes may establish the number of subjects in which examinations must be taken by the student who is a candidate for the degree of doctor of medicine, but the plan of study is only advisory and cannot be flatly imposed on the student. The student has the privilege of selecting, from designated subjects, those that he considers best adapted for his individual purpose.

The faculty of medicine of Milan holds that this conception is not entirely applicable to medical studies, which are calculated to make professional men of the majority of medical graduates —men and women who are useful not only to themselves but also to society.

Since it will doubtless be some time before medical studies are reorganized, as they will probably be eventually, the faculty of medicine of Milan has suggested that special scholarly requirements be set up for those who, already in possession of a degree in medicine, wish to take the so-called state examination, which is required for the practice of the sanitary art.

BELGIUM

(From Our Regular Correspondent)

Oct. 7, 1930.

International Assembly of Army Medical Services

The Belgian government held at Liége, July 18-21, an assembly of the heads of the land, sea and air departments of the army medical corps of the world for the discussion of the two questions: (1) creation of an international bureau of bibliography pertaining to military medicine, and (2) advantages to be derived from an exchange of military physicians in peace times. The assembly passed the following resolution, which has been forwarded to the governments of all countries: 1. It is proposed that there shall be organized, under the control of the permanent committee of the international congresses of military medicine and pharmacy functioning in Belgium, an international bureau of medicomilitary bibliography pertaining to the land, sea and air forces, which shall be at the disposal of all official services, in accordance with regulations to be established by the permanent committee, in accord with the nations accepting this agreement; that these nations shall aid the functioning of the bureau by supplying it as generously as possible with the relative documents they possess, and, in particular, that they shall contribute toward the administrative expenses on the basis of the classification of nations adopted by the League of Nations. 2. It is further proposed that the nations accept and favor the international exchange of officers of the medical corps of the various land, sea and air forces. This exchange should be effected by means of short courses of instruction or by the sending of lecturers to foreign countries, *in accordance with the forms decided* on by each country that endorses the project. The international bureau of medicomilitary bibliography will be found of aid, in this connection, as a bureau of information.

The proposals are now being considered by the various nations, and the permanent committee of the international congresses of military medicine and pharmacy, which meets at The Hague on the occasion of the sixth congress, in June, 1931, will be called on to approve and to complete the organization and to adopt the mode of functioning of the medicomilitary bibliographic bureau.

Bacteria on Paper Money

Mr. Girard has an article in the *Bruxelles Médical* on the bacterial contamination of paper currency. From numerous researches, he found that, per square centimeter of paper currency, *2,000 germs develop on a gelose medium and 3,000 germs* on a gelatin medium. Most of the bacteria obtained by culture are saprophytes: *Micrococcus prodigiosus, B. subtilis,* and germs belonging to the three groups *Megatherium, Mesentericus* and *Proteus;* but there are also pathogenic bacteria originating from the skin, saliva or intestinal tract of those who have handled the currency: *Staphylococcus pyogenes,* var. *aureus, albus* and *citreus, Micrococcus tetragenus, Leptothrix buccalis* and *Leptothrix asteroides* and *Bacterium coli commune.* Also spores of *Aspergillus, Penicillium, Mucor* and *Gladosporium* were encountered. Girard found no evidence of the bacilli of diphtheria or tuberculosis, or of pneumococcus, which require precise conditions for development. He studied the persistence on paper currency of germs deposited for experimental purposes. He gives, as the duration of survival, five days for the Koch bacillus, seven days for *Bacterium typhosum,* twenty days for the colon bacillus, forty-five days for the staphylococcus, and sixty days for the spores of anthrax.

Fourth Congress of Otoneuro-Ophthalmologic Societies

The fourth Congress of Otoneuro-Ophthalmologic Societies was held recently in Brussels, under the chairmanship of Prof. H. Coppez. Professor Brachet expressed in his inaugural address his pleasure over the federation of specialists. Terracol, Euziere and Pages presented a neurolaryngologic study on laryngeal paralyses. The diagnostic value of the laryngeal paralyses varies according as they exist in an approximately pure state or in association with more or less complex neurologic symptoms. Important characteristics point to the peripheral origin of a laryngoplegia: strict homolaterality, frequency of laryngeal anesthesia, muscular atrophy with disorders affecting *reactions to electrical stimulations, association* with the laryngoplegia of disorders pointing to nerve lesions or to multiple foci. To a bulbar seat of the causal lesion point more particularly: the apoplectiform onset, the motor disorders of the limbs of pyramidal or cerebellar nature, and the association of particular symptoms such as rotatory nystagmus, tachycardia and glycosuria. Suspicions of a radicular seat are awakened by the presence of laryngeal paralyses associated with symptoms pointing to involvement of multiple cranial nerves (outside of the nerves of bulbar origin). A trunk lesion may be considered in the presence of a laryngeal paralysis of slow development that evolves without the addition of other symptoms.

The laryngoplegias have likewise value for the determination of the etiology. In the disorders with a bulbar localization, the various diagnoses to be considered are essentially those of syndromes in a focus of vascular origin (preponderant rôle of syphilis), of syringobulbia, of chronic bulbar paralysis, of lateral amyotrophic sclerosis, of multiple sclerosis, of tumors, of acute anterior poliomyelitis, of epidemic encephalitis. Furthermore, the laryngeal paralyses have likewise considerable prognostic interest. From the neurolaryngologic point of view, it is evident that the laryngoplegias of bulbar origin are the most important. Their appearance during a neurologic disorder requires reserved statements as to the future of the patient. In a general way, every laryngeal paralysis awakens suspicion of a lesion of bulbar areas whose functioning is indispensable for the existence of the subject (respiratory or cardiac center). Every subject with a neurologic disorder, in whom bulbar involvement is to be feared, should be subjected systematically to a laryngoscopic examination. The truth is, a laryngoplegia may remain clinically latent, and many surprises might be avoided if the neurologist would take advantage of the regular collaboration of the laryngologist. Inversely, disorders of the voice, if they do not prove to be an expression of a laryngeal paralysis, could be given a more favorable prognosis.

CAPE TOWN

(From Our Regular Correspondent)

Sept. 19, 1930.

Vital Statistics

The bureau of census and vital statistics annually issues reports, which are usually condensed in the year book of the Union, the official government summary of what has happened during the past year. For many years the profession has felt that the basis on which the vital statistics of the Union are tabulated is wrong. That basis makes a distinction between European and native and between colored and native, with the obvious result that the percentages given are not correct. The latest figures of the Union give the European population as 1,738,937, as compared with 1,280,381 in 1911. The coastal areas are slightly more densely populated than the inland areas. The European birth rate is 25.8 per thousand of population, having dropped from 32.5 in 1910, and is lowest in the urban center, which is in some ways the least South African and receives the highest influx of new blood. The European birth rate is high when one compares it with that of Canada or England and Wales, and the rate of natural increase, the excess of births over deaths, is three times as great as that of England and Wales. In 1928 it was 15.6 per thousand of population. The European death rate is 10.15 per thousand and is 5 per cent higher than the average for the previous five years, an increase thought to be due to the increase in the number of persons in the higher age groups. The infant mortality rate was 70.5 per thousand European births, and appears to be stationary, but is 22 per cent below the average rate for the five years 1910-1914. The puerperal mortality rate is 5 per thousand European births, which is almost as high as that for England and Wales, and corresponds with that for Canada (5.5) and Germany (5.2). These figures give a thoroughly false conception of the real vital statistics of the Union. The larger part of the population is composed of aboriginal natives, while there is a section, growing in numbers and importance, of half castes, locally known as Cape coloreds. The death, infantile and puerperal mortality rates among these two classes are much higher than the figures here given, and probably much higher than the calculated figures sometimes quoted. But no one seems to mind. The central government has gone on dealing with public health matters as if these concerned merely the European part of the population. As a matter of fact the European population is so small, and in the urban areas it is so well looked after by thoroughly competent medical officers, that the central health administration might with advantage concentrate on the native and colored population. The published statistics are so inadequate that few realize how widespread is disease and deterioration among the white as well as among the native population. For political reasons this is denied, and politically everything possible is being done to confirm the South African in his belief that he can continue to be the predominant partner even without importing new blood and new strains into the Nordic population.

Medical Inspection of Schools

This tendency to underrate the importance of native health is well seen in the report of the medical inspectors of schools for the Cape Province. Although thousands of native children attend schools in the province, the medical inspectors confine their inspections almost wholly to European children. They report that 36 per cent of European children are defective but state emphatically that the defectiveness among such children is not higher in the province than elsewhere among civilized communities. Their figures have been challenged by former medical inspectors of schools, now in consultant practice, who point out that the figure of 18 per cent dental defectiveness is ludicrous, and that former inspections in the Cape Province gave a much higher general average of defectiveness. The real reason for this low figure is not that physical defectiveness is less prevalent in the Cape Province than it is in the Transvaal or in Natal but because in the Cape alone the medical inspectors follow the antiquated method of examining age groups only, instead of examining all the children, and devoting special attention to entrants and leavers. It is among the leaver group that the defects which militate most strongly against the economic usefulness of the child are found. Taking the Union as a whole, one may say that the prevailing defects found in leavers are remediable defects due to underfeeding or infection. Antenatal underfeeding and antenatal infection are responsible for much of the endocrine and pluriglandular insufficiency. Juvenile underfeeding and infection accounts for approximately one third of the defects discovered in leavers. While in the north malaria, bilharzia and malta fever and, perhaps, ciliate, flagellate and amebic infections produce much defectiveness, the main causes of defectiveness in the Cape Province are probably the same as those in Europe. Rheumatic fever and rickets do not, however, occur in the same relative proportion as they do in Europe or America. Rickets is more rare and occurs chiefly among the colored half castes. Rheumatic fever is probably the most prevalent juvenile disease, and its manifestations are sometimes so common as to raise the suspicion that there is a mild epidemic. Chorea and heart disease, resulting from rheumatic fever, are common enough.

Postinstitutional Care

Only recently has the public discovered that in many of these cases of juvenile defectiveness prolonged postinstitutional care is necessary. Our hospitals make no provision for such intensive convalescent treatment. So far only one proper "school of recovery" has been established. This is at Isipingo in Natal, and is mainly designed to receive children suffering from chronic malaria, who remain in the home for six months or longer and receive, while there, class instruction and clinical treatment. The home is able to deal with a few hundred children a year, but obviously the number of chronic malaria children needing institutional treatment is much greater than can be accommodated by one such school. Lately the Transvaal education department has established temporary treatment camps for the clinical treatment of bilharziatic children. The success obtained in these camps is striking, and the publicity given to them has stimulated the public to clamor for something similar for orthopedic and heart cases. A movement has now been set on foot to establish the Princess Alice School of Recovery at the Cape. Unfortunately the organizers have selected a spot some distance away from the sea, and it is possible that the difficulties of dealing with a site that permits of no adequate drainage and needs the installation of a septic tank will wreck the scheme. At present there is one cripple home in the Union, but there are several good establishments for the blind and for the deaf and dumb, while the government has founded two excellent institutions for juvenile feebleminded patients. So far only the fringe of the problem of the chronic sick has been touched, and so long as hospitalization remains in the hands of the provincial authorities, without adequate funds for proper organization, it is unlikely that the much wanted improvements will be forthcoming.

Deaths in the Profession

South Africa is greatly understaffed with physicians, there being about 1 for every 4,000 people. Our annual recruitment from the universities is approximately 25, and nowadays, contrary to what occurred before 1910, we obtain comparatively few physicians from the outside. The loss through death among our practitioners is relatively large. Last month, for example, seven died, only three of them being seniors in the profession. Among these the oldest, though perhaps not the best known, was Dr. D. B. Logie, who had qualified in 1873 and had been practicing in this country since 1878. He had been in bad health for several years and since 1902 had practically given up practice. Dr. R. Mackenzie of Johannesburg was a better known practitioner and our foremost authority on hospitalization. He was for years medical superintendent of the Johannesburg Hospital. On his retirement under the age limit, some years ago, he devoted himself to consulting dermatologic practice and quickly established a large consulting practice. His death, unexpectedly, from a subphrenic abscess came as a shock to the profession, which he had served for many years as member of the medical council, examiner, and member of the federal council of the medical association. Among the more junior members of the profession whose deaths are recorded are Dr. P. H. Henson of Fort Victoria, Southern Rhodesia, and Dr. A. C. Harrison. The latter was well known as an assayer and metallurgist before he took up medicine, and his brilliant academic career foreshadowed an equally successful professional activity, which has been cut short by his sudden and untimely death. Other medical men whose deaths are recorded this month are Dr. Redelinghuys, Dr. Kennedy, Dr. Kitchin and Dr. J. A. Kennedy, all well known general practitioners.

NETHERLANDS

(From Our Regular Correspondent)

Oct. 7, 1930.

Smallpox Vaccination in Infancy

As a result of studies by the investigating commission, to which reference was made previously (The Journal, July 26, p. 280), the public health service sent a circular letter to all physicians of the Netherlands, calling attention to the advantages of smallpox vaccination during the first year of life. Statistics have shown that, during the first twelve months of life, postvaccinal encephalitis develops much less frequently. Furthermore, the local accidents of vaccination are much less when vaccination is applied during the first year of life. The periods most favorable for vaccination are May and December. Children who have not fully recovered from an infectious disease, and likewise children who are living in an environment in which infectious diseases have recently occurred, should not be vaccinated as yet. The circular letter concludes with an appeal to the physicians of the Netherlands that they adopt this method, as it is the only method that will afford protection against an epidemic of smallpox and that will, at the same time, reduce the dangers of encephalitis.

Aid for Tuberculous Employees

Dr. Jitta sent recently to the International Bureau of Hygiene a communication on the various aspects of the crusade against tuberculosis in the Netherlands. 1. The Netherlands does not have compulsory insurance against tuberculosis. A number of societies assume as their task the providing of aid for their members who have tuberculosis, and also aid for their families. Some of these societies are: (*a*) Herwonnen Levenskracht (recuperated vitality), a Catholic society for combating tuberculosis, which aids its members and persons of their family affiliated with the federation of Catholic artisans, or belonging to the Catholic societies of workmen. (*b*) The general fund for miners, which grants medical aid to miners and their families. The dues are paid partly by the workmen and partly by the mine owners (50 per cent each). (*c*) The railway employees' association for combating tuberculosis. (*d*) The association named "Draagt elkanders Lasten" (bear one another's burdens), established on a Christian basis. (*e*) The sanatorium for the marine. (*f*) "Willen is kunnen" (Qui vult, potest), the association for the municipal employees of Amsterdam, which has its own sanatorium. 2. There are some industrial organizations that take back into their service workmen who have completed a course of treatment, and grant them favorable conditions of work. 3. The following industries have medical services recognized by the committee of the insurance bank of the kingdom:

Werkspoor (construction work), Amsterdam and Zuilen.
Kromhout Motorfabriek, Amsterdam and Zuilen.
"Willem-Sophie" Coal Mine, Heerlen.
Feyenoord (construction work), Rotterdam.
"Oisterwijk" Leather Factory, Oisterwijk.
Heemaf (electrical apparatus), Hengelo.
Artificial Silk Works; Arnhem, Ede and Hillegersberg.
State Mines, Heerlen.
"Orange-Nassau" Mine, Heerlen.
Wilton (builders), Rotterdam.
Lips (manufacturers of safes), Dordrecht.
The Philips Factories (electric lamps), Eindhoven.

(*a*) According to a labor decree, physicians may, in accord with the regional heads of inspection of labor, prescribe the conditions for the employment of women and for the employment of those who are not yet considered as adults. (*b*) Some industries provide for the inspection of dwellings; but there is as yet no extensive control of hygiene in general, with the exception of the Philips factories. 4. There are as yet no industries having hospitals or sanatoriums of their own, although there are societies having a sanatorium for the use of their members.

Vaccination Against Tuberculosis

Dr. Heynsius van den Berg communicated to the International Convention for the Combating of Tuberculosis, held in Oslo, observations made in the Netherlands, which were scientifically established, presenting in parallel series groups of vaccinated and of nonvaccinated children living in the midst of a tuberculous environment. There were 3.8 per cent of deaths from tuberculosis among the vaccinated group and 52.3 per cent of deaths from tuberculosis among the nonvaccinated group, which is proof that the resistance of vaccinated children is notably increased.

The Incidence of Poliomyelitis

The International Bureau of Public Hygiene has published an official report on the cases of poliomyelitis observed in the country in 1929 and 1930. In 1929 there were 507 cases of poliomyelitis notified, 123 from South Holland, 102 from Limburg, 68 from North Holland, and 49 from North Brabant. The widest incidence of the disease occurred in October. In 1930, the number of cases showed an increase beginning with the month of May. Whereas in 1929 the regions most affected were located in the southern and the eastern parts of the Netherlands, this year the central area is the region most affected; more particularly, South Holland and Gelderland. A circular letter addressed in June, 1930, by the "inspector general" of the public health service, to all the medical practitioners of the Netherlands, acquainted them with the means at their disposal when they discover a case of poliomyelitis. The country was divided into twenty-three districts in each of which a specialist in neurology was designated to assist the general practitioners. The latter could call in the neurologist for a consultation whenever they encountered a suspicious case, the expense of the consultation being charged to the central government. A card attached to the circular letter gave the general practitioner the name, address and telephone number of the neurologist to whom he should address himself in case of need. The circular letter contained also information in regard to the chief clinical facts known with reference to the disease, which served to aid in the diagnosis of suspected cases and in controlling their development.

Owing to this organization, the diagnosis could be rapidly established and the proper treatment could be instituted without delay. Convalescents' serum, for securing which special regulations were established, would be sent to the neurologist, on request by telegraph, by the Central Laboratory at Utrecht. The attending physician and the neurologist unite their efforts to get the patient admitted to the hospital where the best conditions for recovery are obtainable.

Traffic Accidents in Amsterdam

During the previous quarter, the number of traffic accidents in Amsterdam reached 1,547, as compared with 1,430 for the corresponding period of last year, an increase of 8 per cent. The grave accidents gave a total of 181, as against 108 last year. Thirteen of the accidents resulted fatally and in eighty-six further cases the injuries were very serious. About 72 per cent of the accidents were due to the negligence of the drivers of the vehicles and 10 per cent were due to the carelessness of pedestrians. A comparative study of fatal and grave accidents in various cities follows: Amsterdam has 218.2 accidents per 100,000 inhabitants; London, 726.2; Liverpool, 514.2; Munich, 476.1, and New York, 903.3. Paris reports 105.4 accidents per 100,000 of population, but all the slighter accidents have been eliminated.

BERLIN

(From Our Regular Correspondent)

Oct. 13, 1930.

Mental Abnormalities in Women, Associated with Reproductive Processes

Prof. Hugo Sellheim, director of the Universitäts-Frauenklinik, in Leipzig, presented recently before the Juristisch-medizinische Gesellschaft of Leipzig a paper on "Influence of the Reproductive Cycles on the Sense of Moral Responsibility Displayed by Women." Three different branches of knowledge are concerned with researches on the influence of the reproductive phases in women, with all their anomalies and peculiarities —namely, gynecology, including obstetrics; psychiatry, and jurisprudence. Criminal manifestations are, on the whole, less marked in women than in men, but certain criminal acts are more common in women than in men; more particularly, certain acts that in their origin are associated with sex life and family life in general. In any event, the phases in the reproductive or sex life of woman affect increasingly psychic manifestations or disturbances in the various cycles of life. The psychic disturbances to be noted vary greatly in nature and in duration, and questions pertaining to the more or less restricted sense of moral responsibility must be studied in the light of the influences mentioned.

In unusual emotional acts of women, and especially in connection with misdemeanors and crimes, a careful inquiry must be made into the existing physical conditions that constitute the background or that may have had a precipitating influence.

It is not always the extreme degrees of mental exhaustion and excitement that demand consideration in the daily life of woman; also the emotional disturbances that appear without apparent cause require intelligent analysis. Under the influence of generative processes, ranging from puberty to the climacteric, or beyond, there appear from time to time, sometimes with frequent repetitions but often with considerable regularity, fear, irresoluteness, increased irritability, loss of memory—in fact, women may appear to be entirely changed in character.

Sellheim, therefore, recommends that women, burdened with the tasks of reproduction and often with outside occupational cares, be judged with the greatest forbearance. Their emotional disturbances cannot be understood without an open mind and a kindly appreciation of woman's character based on a knowledge of woman's bodily peculiarities.

Assembly of Society of German Scientists and Physicians

At a joint meeting of the two main sections of the ninety-first session of the Gesellschaft Deutscher Naturforscher und Aerzte, in Königsberg, Oct. 6-8, 1930, A. Dietrich of Tübingen spoke on the "Essential Nature and Causes of Thrombosis and Embolism." The mechanism of the origin and the growth of a thrombus is conditioned by the combined action of several factors; the chief influence is a change in the relations of vessel wall, blood and circulation. Thrombosis is not a purely mechanical process consisting merely of an elimination from the blood, but it is a reactive process precipitated by a disturbance of the relation between blood and vessel wall, in which one or the other may become abnormally dominant. The danger from embolism is slight in local thrombi of limited extent but is great in migratory thrombi, especially if a sudden change in the relation of vessel wall and blood should lead to a rapid discharge of loose thrombic masses. A. Mayer of Tübingen discussed the theme from the standpoint of the gynecologist. Puerperal thrombosis appears to be more frequent than postoperative thrombosis. Embolism, however, is more frequent after operations than post partum, and more frequent after occult and bland thromboses than after manifest and infectious thromboses. The differential diagnosis between infectious and bland thromboses is difficult to apply clinically. There is no form of prophylaxis that can be relied on with certainty. As regards therapy, the treatment of thrombosis with ambulatory bandages deserves attention; in embolism the Trendelenburg operation is a distinct step forward, though the indications for the operation are extremely difficult to determine. Zwerg of Königsberg spoke on the present status of "Radium Surgery in Its Application to Malignant Tumors." He described how, by the combined use of operation and the introduction of radium containers, most excellent results can be secured, though the treatment is limited essentially to certain tumors. For instance, highly favorable results are obtained in cancer of the bladder, whereas cancer of the prostate does not offer a favorable field. Cancer of the rectum should, as far as possible, be operated on, and the radium containers inserted afterward. With these measures, the results are much better than with any other mode of treatment. Cancer of the uterus should not be treated with radium—treatment with roentgen rays is by far more successful. The next topic was "The Roentgen Diagnosis of the Large Intestine." H. H. Berg of Berlin demonstrated how, with the aid of the roentgenogram, disorders of the large intestine can be recognized and differentiated. H. Chaoul of Berlin presented a paper on "The Roentgen Diagnosis of Tumor Formation in the Large Intestine." By means of roentgenologic examination of the large intestine pathologic organic changes can be diagnosed with immeasurably greater certainty than by the sole utilization of anamnestic and clinical methods, which commonly lead to atypical results.

At another session, M. Askanazy of Genoa spoke on "Benign Disorders of the Mammary Gland in Their Relations to Cancer of the Breast." The benign disorders that may lead to cancer consist of certain malformations and inflammations, a fibrosis associated with cyst formation, and certain benign growths. It is not certain that any one of them will lead to cancer. Cysts of the breast signify neither inflammation nor tumor. They are to be regarded merely as evidence of a peculiar irritability of the epithelium of the mammary gland. The epithelium may proliferate with or without metaplastic change and may develop into cancer. It has not been demonstrated that parasitic influence plays any part in the development of cancer of the breast in man. There may be marked predisposition of the organ, but that does not suffice for the formation of cancer.

Marriages

R. M. Baldwin, Madison, Wis., to Miss Lorenchia Christensen of Beloit, in Wilman, Minn., September 13.

Thomas Henning Anderson, Lawrenceville, Va., to Miss Ruth Sullenberger, of Monterey, September 25.

Adolph Gottlieb Kammer, Belleville, Wis., to Miss Margaret M. Carrol of Philadelphia, September 6.

Robert E. Burns to Dr. Charlotte J. Calvert, both of Madison, Wis., in Minneapolis, September 16.

Earl D. McConnell, Darlington, Wis., to Miss Mary E. Cox of Platteville, in Madison, September 2.

N. Warren Bourne to Miss Evangeline Lueth, both of Milwaukee, at Manitowoc, September 16.

Henry Charles Davis, Grundy, Va., to Miss Vida Louise Looney of Welch, W. Va., August 30.

Lewis Abner Law, Alberta, Va., to Miss Evelyn Virginia Thompson of Lexington, September 3.

Thomas Boyd Washington to Mrs. Effie Daniel Ansley, both of Richmond, Va., September 1.

Leo Frank Chess, Reed City, Mich., to Miss Thelma Heck of Blairstown, Iowa, September 5.

Fred O. E. Eggert, Chicago, to Miss Helen Jane Duncan of Appleton, Wis., September 10.

Charles R. Anderson to Miss Lena R. Riley, both of Winchester, Va., August 21.

John Willard Travell to Mrs. Edith Talcott Bates, both of New York, August 14.

Carlton J. Ryan to Miss Elvira E. Dashner, both of Adams, Wis., August 26.

Deaths

Preston Manasseh Hickey ⊕ since 1922 professor of roentgenology, University of Michigan Medical School, Ann Arbor, died, October 30, aged 64. Dr. Hickey was born in Ypsilanti, Mich., Dec. 3, 1865. He graduated from the University of Michigan in 1888, and the Detroit College of Medicine, in 1892. Dr. Hickey was professor of roentgenology at his alma mater from 1909 to 1922. He was a lieutenant colonel during the World War and a consultant in roentgenology in the American Expeditionary Forces, a member of the American College of Physicians, the American College of Surgeons, the Radiological Society of North America, the American College of Radiology, and member and past president of the American Roentgen Ray Society. He was roentgenologist to the Children's Hospital, Harper Hospital, Receiving Hospital, Detroit, and the University Hospital, Ann Arbor. Dr. Hickey was one of the pioneer radiologists. He was largely responsible for increasing the scope of the radiologic exhibit which has become outstanding at the annual sessions of the American Medical Association. He was instrumental also in the establishment of the Henry Simpson Memorial Institute for Medical Research at Ann Arbor.

Derrick Tilton Vail, Sr. ⊕ Cincinnati; Miami Medical College, Cincinnati, 1890; emeritus professor of ophthalmology, University of Cincinnati College of Medicine; member and past president of the American Academy of Ophthalmology and Oto-Laryngology, member of the American Ophthalmological Society and the American College of Surgeons; consulting ophthalmologist to the Cincinnati General Hospital; proprietor of a hospital bearing his name; aged 66; died, October 29, of heart disease.

Lever Flegal Stewart ⊕ Clearfield, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1910; member of the American College of Surgeons; served during the World War; aged 42; died, July 22, in the Jewish Hospital, Philadelphia, of cholelithiasis.

Dean Spencer Drake, White River Junction, Vt.; University of Vermont College of Medicine, Burlington, 1904; member of the Vermont State Medical Society; served during the World War; aged 58; died, August 30, in Monson, Mass., of angina pectoris.

Luther F. Crawford, Tyrone, Pa.; Eclectic Medical Institute, Cincinnati, 1890; member of the Medical Society of the State of Pennsylvania; veteran of the Spanish-American War; aged 71; died, August 22, in Pittsburgh, of heart disease.

Fred Fisher, Jr. ⊕ Erie, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1913; owner of an eye, ear, nose and throat hospital; aged 39; died, September 2, in the Augustana Hospital, Chicago, of acute appendicitis.

Hollis Goodell Dean ⊕ Fredonia, Pa.; Chicago Homeopathic Medical College, 1891; Hahnemann Medical College and Hospital, Chicago, 1905; aged 65; died, September 1, in the Mercer (Pa.) Cottage Hospital, of angina pectoris.

Charles Philip McCabe, Greenville, N. Y.; Albany Medical College, 1883; member of the Medical Society of the State of New York; aged 74; died, in September, in Albany, of chronic myocarditis and cerebral arteriosclerosis.

Charles Henderson Chandler, Fort Fairfield, Maine; Tufts College Medical School, Boston, 1911; member of the Massachusetts Medical Society; aged 44; died, September 5, of chronic myocarditis and bronchopneumonia.

John Claudius Young, Cuba, N. Y.; University of Buffalo School of Medicine, 1871; member of the Medical Society of the State of New York; aged 85; died, October 4, of chronic bronchitis and myocarditis.

William W. Pennell ⊕ Mount Vernon, Ohio; University of Wooster Medical Department, Cleveland, 1875; aged 77; died, September 30, in the Christ Hospital, Cincinnati, of myocarditis and prostatitis.

James William McDonald, Worcester, Mass.; University of Maryland School of Medicine, Baltimore, 1902; member of the Massachusetts Medical Society; aged 60; died, September 26, of heart disease.

Francis Rupright, East Gilead, Mich.; Indiana Eclectic Medical College, Indianapolis, 1888; aged 66; died, September 28, in the New Borgess Hospital, Kalamazoo, of cerebral hemorrhage.

Sarah J. McNutt, Albany, N. Y.; Woman's Medical College of the New York Infirmary for Women and Children, 1877; aged 91; died, September 10, of arteriosclerosis and myocarditis.

Charles P. Peterman, Brooklyn; Long Island College Hospital, Brooklyn, 1883; member of the Medical Society of the State of New York; aged 73; died, October 6, of heart disease.

Thomas Wilson Burrows, Chicago; Rush Medical College, Chicago, 1887; on the staff of a hospital bearing his name; aged 68; died, September 26, in Utrecht, Holland, of heart disease.

George F. Mead, Pinckneyville, Ill.; St. Louis College of Physicians and Surgeons, 1892; member of the Illinois State Medical Society; aged 66; died, October 1, of heart disease.

Joseph Fernand Lescale, New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1895; aged 58; died, September 21, of myocarditis and nephritis.

George O. Maskey, Upper Sandusky, Ohio; Medical Department of Western Reserve University, Cleveland, 1882; aged 74; died, in October, of cerebral hemorrhage.

Louis Henry Warner, Newark, N. J. (licensed, New York, 1893); aged 69; died, October 4, in the Homeopathic Hospital, East Orange, of acute intestinal obstruction.

William J. Davis, Pottstown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1889; also a druggist; aged 62; died, September 11, of nephritis.

Shelby Cullom Shurick ⊕ Wrangell, Alaska (licensed, Alaska, 1909); served during the World War; aged 53; died, July 13, of tuberculous laryngitis.

J. Paul Harvill, Nashville, Tenn.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1901; aged 58; died, October 6, of angina pectoris.

Elmer Ellsworth Best, Los Angeles; College of Physicians and Surgeons, Chicago, 1899; aged 72; died, August 29, of hemorrhage, following a fall.

Clarence Elton Wheeler, Milwaukee; Milwaukee Medical College, 1901; aged 59; died, August 25, of cerebral hemorrhage and cirrhosis of the liver.

Asa Bennett Stratton, Exeter, Neb.; Central Medical College of St Joseph, Mo., 1895; aged 69; died, August 31, of cerebral hemorrhage.

Ralph Parker Dowd ⊕ Fisher, Ill.; Medical College of Ohio, Cincinnati, 1893; aged 64; died, September 29, of arteriosclerosis.

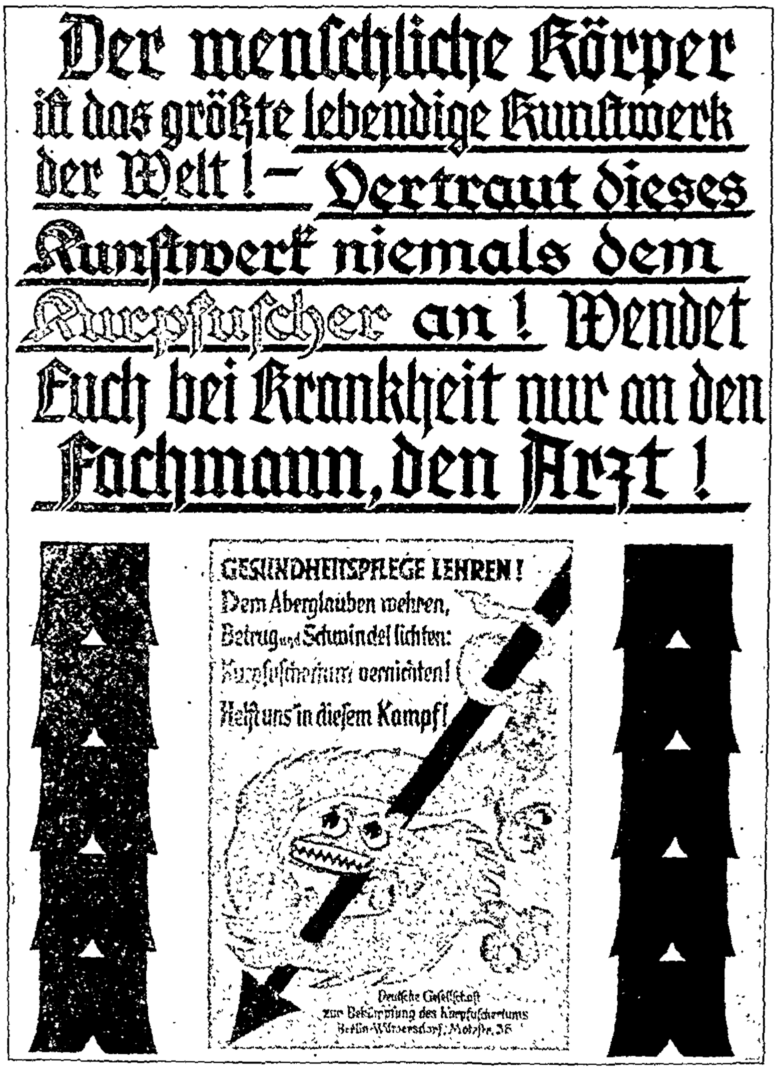
Charles Edward Williams, Boston; Tufts College Medical School, Boston, 1900; aged 75; died, September 23, of cerebral hemorrhage.

Bureau of Investigation

MORE MISBRANDED NOSTRUMS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

Old Mission Laxative Cold Tablets.—The S. Pfeiffer Manufacturing Company, St. Louis, Mo., shipped in January, 1929, into Indiana a quantity of Old Mission Laxative Cold Tablets that were declared misbranded. The tablets were reported to contain, chiefly, acetanilide, a cinchonine compound, extracts of laxative plant drugs, terpin hydrate, oil of wintergreen, and a small amount of potassium bromide. The claims that this was a remedy for coughs and influenza were declared false and fraudulent and in September, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed. — [*Notice of Judgment 16790; issued May, 1930.*]


Der menſchliche Körper iſt das größte lebendige Kunſtwerk der Welt! — Vertraut dieses Kunſtwerk niemals dem Kurpfuſcher an! Wendet Euch bei Krankheit nur an den Fachmann, den Arzt!
GESUNDHEITSPFLEGE LEHREN!
Dem Aberglauben wehren,
Betrug u. Schwindel ſichten:
Kurpfuſchertum vernichten!
Helft uns in dieſem Kampf!
Deutſche Geſellſchaft zur Bekämpfung des Kurpfuſchertums Berlin-Wilmersdorf, Motzſtr. 38

This is a monotone reproduction of a four color (red, green, yellow and black) poster issued by the German Society for Combating Quackery. A free translation reads: "The Human Body is the Greatest Work of Art in the World! Do Not Entrust this Work of Art to a Quack! During Illness Consult only a Reputable Physician!"

"To Teach Hygiene!
"To Combat Superstition!
"To Expose Frauds and Swindles!
"To Eradicate Quackery!
"Help Us to Attain These Aims!

A. D. S. Cold and Grippe Tablets.—The Vadsco Sales Corporation, Long Island City, N. Y., shipped into Illinois in January, 1929, a quantity of A. D. S. Cold and Grippe Tablets that were declared misbranded. The tablets were found to contain acetanilide, quinine sulphate, aloin, camphor, red pepper and extract of podophyllum. The claim that the product was a remedy for influenza was declared false and fraudulent; the statement that each tablet contained 2 grains of acetanilide when, as a matter of fact, it contained less than that constituted further misbranding. In April, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16799; issued May, 1930.*]

Astyptodyne and Astyptodyne Cough Syrup.—The Astyptodyne Chemical Company, Wilmington, N. C., shipped in January and December, 1928, and January, 1929, into South Carolina quantities of Astyptodyne and Astyptodyne Cough Syrup, both of which were declared misbranded. Astyptodyne was found on analysis to consist of pine oil, while the Astyptodyne Cough Syrup consisted of sugar syrup and 2 per cent of pine oil. The claims for Astyptodyne, to the effect that it was a remedy for old ulcers, sores, wounds, skin eruptions, itch, eczema, neuralgia, etc., and the claims for Astyptodyne Cough Syrup, to the effect that it was a remedy for coughs, sore throat, bronchitis, whooping cough and croup, were declared false and fraudulent, while the further claim that Astyptodyne was antiseptic and germicidal was declared false and misleading. In June, 1929, the court ordered that the product be destroyed.—[*Notice of Judgment 16800; issued May, 1930.*]

Nip-a-Co Capsules. — Frederick Stearns and Company of Detroit shipped in September, 1928, to West Virginia a quantity of Nip-a-Co Capsules that were declared adulterated and misbranded. Analysis showed the capsules to contain, essentially, acetanilide, cinchonine sulphate, magnesium carbonate, red pepper, extracts of plant drugs including podophyllum and jalap, traces of salicylic acid, and alkaloids of aconite. It was declared adulterated because the label declared that each capsule contained cod liver oil extract, which the federal chemists reported it did not; this claim also constituted misbranding. Further, the therapeutic claims that this was a remedy for neuralgia and influenza were declared false and fraudulent. In May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16851; issued July, 1930.*]

Pronto.—The National Drug Products, Inc., Albany, N. Y., shipped into Florida in January, 1929, a quantity of Pronto that was declared misbranded. The government chemists reported that it consisted essentially of ammonium salicylate, glycerine, small amounts of potassium, antimony and free ammonia, traces of magnesium, chlorides and sulphates, and an extract of a laxative plant drug. The claims that it was a remedy for influenza, sore throat, chronic constipation, bronchitis, etc., were declared false and fraudulent, and in October, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16869; issued July, 1930.*]

Correspondence

THE MENACE OF THE MEAT DIET

To the Editor:—In a recent editorial (Is a Meat Diet a Menace? The Journal, September 20, p. 866) you conclude by inference that a meat diet will not injure the kidneys and cite the observations at the Russell Sage Institute of Pathology on two arctic explorers as experimental support for your views. So far as I can see, the only conclusion properly deducible from these observations is that an average intake of meat protein of from 100 to 140 Gm. daily for one year causes no detectable kidney damage. What might happen after two or more years on such a diet remains unknown.

The experiment of Newburgh, Falcon-Lesses and Johnston (*Am. J. M. Sc.* **179**:305 [March] 1930), in which evidence of kidney damage in man was obtained on a diet containing 330 Gm. of meat protein per diem in less than six months, indicates that renal injury may be caused by diets sufficiently high in meat protein. Further, Newburgh and his co-workers (Newburgh and Curtis: *Arch. Int. Med.* **42**:801 [Dec.] 1928) have succeeded in producing chronic nephritis in laboratory animals by high meat diets.

However, it remains to be determined (1) whether the animal nephritis produced by meat protein is pathologically analogous to chronic nephritis in man, (2) whether human beings ordinarily, or even occasionally, eat enough meat protein to cause chronic nephritis, and (3) whether the meat consumption of patients with chronic nephritis has been at such levels as might cause nephropathy. Meat protein might cause chronic nephritis and yet not be the usual etiologic agent because not ingested at appropriate levels.

In contrast to the studies of Thomas and Heinbecker, who found no unusual incidence of kidney disease among Eskimos, must be placed the investigations of Hindhede, who finds that chronic nephritis is most common in people who eat much animal food.

The entire problem, I believe, should be kept *sub judice* until the foregoing questions are more fully answered.

Mark Falcon-Lesses, M.D., Boston.

THE "MEDICAL INTERPRETER"

To the Editor:—Kindly give publicity to the following:

Under date of April 13, 1930, I received a letter from Dr. Arthur F. Stotts, Colonel, Medical Reserve Corps, Galesburg, Ill., stating that a representative of the *Medical Interpreter* had informed him that the *Medical Interpreter* was published in conjunction with the Public Health Service and the Army Medical Library, and requesting information in regard to the matter. Under date of September 2 I had a similar letter from Dr. W. L. Casler, Marquette, Mich., and under date of October 13, a similar one from Dr. Ewald Hermann.

These letters suggest that there is a systematic effort to make it appear that the *Medical Interpreter* bears an official relationship to the public health services and especially to the Army Medical Library.

The facts are that two employees of the *Medical Interpreter*, women without medical training so far as I know, utilize the Army Medical Library as all citizens may. I understand that their work is the preparation of abstracts and bibliographies for subscribers to the *Medical Interpreter's* service.

Any representation that the *Medical Interpreter* shares its profit, if any, with the Office of the Surgeon General of the Army or with the Army Medical Library, or that they or either of them is associated with it, interested in it, or even gives it approval, is false and misleading.

M. W. Ireland, M.D., Washington, D. C.
Surgeon General, United States Army.

"SOMNOFORM"

To the Editor:—I have recently received from the Stratford-Cookson Company of Philadelphia an advertisement of "Somnoform." The formula given for "Somnoform" is chloride of ethyl, 83 per cent; chloride of methyl, 16 per cent; bromide of ethyl, 1 per cent. Below this formula it is asserted that "the record of Somnoform for safety is without equal." If such is the case the record must be regarded as a pure piece of good fortune, for two at least of the ingredients of "Somnoform" have a toxicity which renders them unfit for use as anesthetics. The poisonous character of methyl chloride has been sufficiently demonstrated by the refrigerator cases in Chicago. Although the amount of ethyl bromide in the mixture is small, there are general grounds for believing that the toxicity of the substance is high. Ethyl chloride is, of course, a commonly used and convenient anesthetic, but it possesses to a considerable degree dangers of the same type as chloroform. As much safer anesthetics, such as ether, ethylene and nitrous oxide, are available, there is really, in my opinion, little justification for the continued use of ethyl chloride as an anesthetic at all.

Yandell Henderson, Ph.D., New Haven, Conn.

[Note.—In 1919 the Council on Pharmacy and Chemistry declared "Somnoform" inadmissible to New and Nonofficial Remedies because, in the absence of acceptable evidence showing its exceptional safety and value, the claims made for it were held to be unwarranted and because the name of the mixture is not descriptive of its composition.—Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OVARIAN EXTRACTS AND HORMONES AND SEXUAL FRIGIDITY

To the Editor:—Will you please explain the difference between the newly discovered sex hormone and the older substances, as ovarian extract and corpus luteum? What is the recognized name for the former? How does the former differ from the latter in action in the female? Which pharmaceutic company manufactures the former? What is the treatment for female frigidity when it is congenital and hereditary? The patient has one child. Both she and her husband are intelligent, but I foresee a family separation unless this matter is corrected. There is no anatomic abnormality in the female and she is willing to do anything possible to adjust this matter. Please omit name. M.D., New York.

Answer.—It is not surprising that some physicians have a hazy conception of the differences between the newly discovered female sex hormones and other hormones which are produced in the female genitalia. Even authorities are not agreed on the differences. Frank (The Female Sex Hormone, 1929) points out that many investigators believe there is only one female sex hormone which is responsible for all the sex phenomena including the estrual cycle in the lower animals and the menstrual cycle in the anthropoids. Others believe that in addition to the ovarioplacental hormone there is a second inhibitory one which arises in the corpus luteum at the same time the female sex hormone is being secreted. This special corpus luteum hormone regulates the rhythm of the cycle and sensitizes the uterine mucous membrane. These researches indicate that the corpus luteum secretes two different hormones simultaneously. Allen and Corner (*Proc. Soc. Exper. Biol. & Med.* **27**:403 [Feb.] 1930) recently demonstrated a substance in the corpus luteum of pigs which, when injected, will maintain pregnancy to full term in rabbits spayed at the eighteenth day after mating.

The graafian follicle and its successor the corpus luteum are the sources of the hormones which bring about puberty and the continuation of the menstrual cycle. The hormone from the follicle prepares the uterus for menstruation while the corpus luteum continues and adds to this hormonal action. By means of this the uterine endometrium is prepared for the reception of a fertilized ovum. Papanicolaou (The Journal, May 8, 1926, p. 1422) states that there is a hormone produced by the corpus luteum which is antagonistic to the female sex hormone. He calls it the "luteal hormone" and its function is to inhibit further maturation of graafian follicles during the periods of physiologic amenorrhea between puberty and the menopause.

The female sex hormone is found in the follicle fluid, the corpus luteum, the placenta, the blood, the urine of normal women, the urine of pregnant women, the feces, the bile, the blood of males and other tissue fluids. It may also be found in plants. Excellent pioneer work on the isolation of this principle has been done by E. A. Doisy, who has coined for it the nonproprietary name "Theelin" (The Journal, May 10, 1930, p. 1523).

The anterior pituitary hormone recently discovered in the urine by Aschheim and Zondek differs from the female sex hormone found in the unruptured follicle, the corpus luteum and the placenta in the following way: The pituitary hormone influences the ovaries so as to cause the ripening of immature follicles and the formation of corpora lutea. For this reason Zondek calls the anterior pituitary gland "the motor of ovarian activity." It has no direct effect on the uterine and vaginal mucosa. On the other hand, the female sex hormone has practically no effect on the follicular apparatus but it does have a distinct stimulating influence on the lower genital tract, bringing about estrus in castrated mice and rats. The anterior pituitary hormone is most likely more important in sex physiology than what has hitherto been considered as the characteristic female sex hormone.

Three biologic tests have been devised, based on these hormones. In one, adult spayed mice are employed and estrus is produced by the female sex hormone. In the second, noncastrated infantile mice are used and an effect is produced in the uterus and vagina through the ovary. The hormone responsible for this presumably comes from the anterior pituitary. The third test consists of injecting blood serum from pregnant women into immature virgin animals and producing changes in the uterus and estrus.

Ovarian extract is a mixture of everything in the ovary—graafian follicle, corpus luteum, stroma. It has practically no specific action (The Journal, June 21, p. 1997).

Commercial extracts of the female sex hormone are made in this country by E. R. Squibb and Sons under the trade names of Ovarian Hormone-Squibb and Amniotin-Squibb (The Journal, May 18, 1929, p. 1678) and by Parke, Davis & Company under the trade name of Estrogen. European preparations and their manufacturers are as follows: Menformon old and Menformon new, made by Degewop; Sistomensin and Agomensin, made by Ciba. Other foreign extracts of the female sex hormone are Folliculin and Hormovar.

The prices for these extracts are high and thus far the clinical results obtained with them have not been striking. Their use is still in the experimental stage, although some women may have been benefited by them. In many instances these products when given hypodermically produce unpleasant local and systemic reactions. Recently Allen and Baker (*Am. J. Obst. & Gynec.* **20**:85 [July] 1930) reported that the administration of amniotin-Squibb in gelatin pessaries by the vaginal route was not only less objectionable but more effective than subcutaneous injections of water preparations.

The treatment of frigidity in the female is usually entirely unsatisfactory. A large proportion of women have absolutely no libido and little can be done for most of them. In many cases there is a psychic factor which can or cannot be overcome. In most instances the wife has no real deep love for her husband; but on the other hand frigidity may be present even when sincere love is a certainty. Drugs are almost entirely useless. Occasionally hot tub baths before going to bed for the purpose of producing a hyperemia are helpful. Fewer matrimonial disagreements would arise if frigid women would refrain from confessing their sexual anesthesia to their husbands.

ACUTE SWELLING OF THE TONGUE

To the Editor:—A man, aged 45, weight 220 pounds (100 Kg.), health perfect and without previous sickness, came to me with a swollen tongue. The swelling began about 6 p. m., and he came to see me two hours later with the tongue so swollen that it was difficult for him to talk. He said that at first it felt as if there were a small pimple on the outside of the tongue. By midnight it commenced subsiding and he soon was relieved. He did not complain of pain or tenderness. There was no discoloration. The temperature and pulse were normal. I would appreciate a diagnosis and discussion of the treatment. Please omit name. M.D., Tennessee.

Answer.—An acute swelling of the tongue might result from an injury such as biting it, which may have been forgotten. It might have been an angioneurotic edema or urticaria, in which one may obtain a history of previous attacks. An acute local inflammatory condition might cause the symptoms. This is perhaps the most likely cause in the absence of a history of the other conditions. However, it is rather unusual for infection to develop and subside suddenly without other evidence than the feeling of a pimple, which may have been the result of the swollen tongue projecting between two teeth.

Occasionally, with an acute tonsillitis, an abscess may develop in a crypt producing an acute local edema on one side of the tongue. This would promptly subside with spontaneous drainage of the crypt. Such an infection might occur in any of the small glands or lymph follicles in the mouth. Pain is not always present. The teeth should be examined for abscesses, since they may cause a submaxillary inflammation of the glands, causing swelling of the tongue.

The treatment depends on determining the cause. In early infections with edema, incision should be avoided until there has been a sufficient time for a protective zone of round cell infiltration with evidence of abscess formation. Intermittent large hot moist applications to the region involved are indicated. Continuous hot applications may aggravate the edema, which may extend to the larynx.

A Ludwig's angina may result when there is a cellulitis extending to the submaxillary triangles from the floor of the mouth. This has a high mortality and requires extensive operative drainage to prevent its extension.

All patients with the symptoms of the swelling described should be carefully observed with frequent blood counts until relief has been obtained. When abscess formation is suspected, it should be incised.

BURN WITH TETRA-ETHYL LEAD OR ETHYLENE DIBROMIDE

To the Editor:—Recently one of our laboratory men was burned on the dorsal medial surface of his left hand with tetra-ethyl lead used in making ethyl gasoline, and the process is called "knock rating." When he was questioned concerning the burn the man related: "It feels like my hand had been stuck in flame of fire and just as soon as I put it in water and wash off the fluid, the sensation disappears but the burn is present." The burn that he had was of first degree nature, acute hyperemia. I will appreciate it if you will give me the antidote or neutralizing agent for this type of burn and the best way to handle it in regard to treatment.

R. Henry Harrison, Jr., M.D., Ingleside, Texas.

Answer.—Tetra-ethyl lead is not a skin irritant. Exposure in the manner indicated may be expected to lead to no more skin irritation than from an equal amount of gasoline. Frequently there is associated, with the tetra-ethyl lead, ethylene dibromide, which is known to possess some irritant properties. It is likely that the burn referred to is due to the latter substance. Immediately following exposure, any worker should apply kerosene or some similar substance. This application is not so much to prevent skin irritation as to prevent absorption, since both tetra-ethyl lead and ethylene dibromide are absorbable through this portal. Following this step, the portion of the body so exposed and so treated should be washed with soap and water in order to remove the kerosene containing these chemicals. No other treatment is ordinarily required, but, if skin irritation requires further attention, such conditions may be treated as any other burn of equal severity.

TREATMENT OF COLITIS

To the Editor:—A patient of mine was taken sick with a hard chill, June 24, and immediately developed a severe colitis. By using the usual treatment I soon got the bowels checked, but I cannot get them regulated. The patient has been kept on a soft diet until almost starved, but the bowels would immediately break loose if anything but soft diet was given. When the bowels are checked, impactions form which require an opiate to move as he has been sick so long, he has no strength to pass the impaction, and the cramping is intense when the bowels move. Is there any treatment for these impactions, which form in the bowels about every six or seven hours? It is impossible for the patient to endure the pain without a hypodermic of morphine after an enema. Is there any treatment for it? The bowels seem to be paralyzed and the patient is growing weaker each day. Will the morphine have a tendency to constipate? The patient became addicted while the colitis was so bad. I would be more than glad if you could suggest something to do as I am at my wits' end. Please omit name. M.D., Illinois.

Answer.—It would be best to continue on a smooth diet, a diet the particles in which are so fine that they could go or have gone through a sieve, until the patient is well beyond the present stage. Then a gradual return to general diet should be attempted by adding tender cellulose-containing vegetables, such as spinach, cauliflower and asparagus, then bran, and later the coarser vegetables. Oils should be used freely from above as well as from below. Liquid petrolatum, in doses of a tablespoonful or two, may be taken morning and evening and half an hour before dinner and supper as well. The oil enema (as much warm olive oil as the patient can retain over night) should be repeated every evening for several days. If enough oil is used, the hard fecal masses cannot form; and, if any are passed during this treatment it is reasonable to assume that they have been in the bowel prior to it.

If, in spite of the liquid petrolatum and the oil enemas, spontaneous bowel movements do not occur, then a course of castor oil, taken instead of the liquid petrolatum, in similar doses will surely do the work. In addition, the patient should be weaned of the use of opiate by employment of another analgesic, if required, such as extract of hyoscyamus, 0.02 Gm., phenobarbital, 0.03 Gm., and amidopyrine, 0.3 Gm., in capsules, repeated every two to four hours as required. If this does not suffice to relieve the pain, codeine phosphate, 0.03 Gm., may have to be added for a time.

TUBERCULOSIS AS CONTRAINDICATION TO ATHLETICS

To the Editor:—I recently examined a boy, aged 15 years, who was referred to me by his father with particular reference as to whether to allow his son to participate in athletics. The boy is attending high school and is a member of the school soccer team. The boy's mother died of tuberculosis at the age of 26 when the boy was 4 years of age. In the mother's family all the brothers and sisters died of tuberculosis, also the mother's father. The boy was in actual contact with the tuberculous mother during four years. The boy is now 5 feet 9 inches (175 cm.) in height, weighs 127 pounds (57.6 Kg.), is of good build, and on detailed examination presents a normal chest. Roentgen examination reveals an angular symmetrical chest. There is calcification and prominence of both hili associated with a calcified focus in the second intercostal space on the right side. The diaphragm is smooth. The total heart area is proportionately small. The roentgenologist came to the conclusion that there was a healed tuberculous focus in the second intercostal space on the right side. There is, however, no evidence of any recent involvement. The question in this case arises as to whether to prohibit this boy, who is physically normal, from playing in a sport such as soccer, of which he is fond, or to allow him to continue to indulge in any such strenuous athletic activity. Is there a possibility of the healed tuberculous process "lighting up" at any time. Please omit name. M.D., New York.

Answer.—As it is impossible to tell absolutely from a roentgenologic examination whether the focus of tuberculosis has entirely healed, this boy must be watched from the standpoint of possibly having living tubercle bacilli present in the affected area. As he is underweight for his height and in his rapidly growing years, he should never exercise to the point of fatigue or exhaustion, such as is necessitated by competitive sports such as soccer. His exercise should consist of walking or calisthenics. Every effort should be made to prevent a lighting up of his old focus; especially should he avoid fatigue and exhaustion, spend plenty of time in the fresh air, eat plenty of good general diet containing adequate calcium (milk, eggs and vegetables) and vitamins, including cod liver oil. He should be built up if possible so that his weight more nearly corresponds with his height.

TREATMENT OF MAXILLARY SINUSITIS

To the Editor:—I have a patient who has had a chronic maxillary sinusitis for about ten years and is subject to frequent acute relapses. He has been to various specialists. He usually gets relief for a short time, but recently he has failed event to get temporary relief. Some blood is discharged from both nostrils and is presumably coming from the sinuses. He has had the sinus (the one causing most of the trouble) opened and irrigated and treated many times. Would you advise a more radical operation and curet the sinus or not?

R. H. Dunn, M.D., Rosholt, Wis.

Answer.—It is quite possible that erosion, either of the mucosa of the sinuses themselves or of the turbinates or septum, might be the cause of the appearance of blood. Whether a more radical operation should be done can be judged only by careful examination of the patient himself.

RECURRENT DERMATITIS NOT DUE TO MAGNESIUM SULPHATE

To the Editor:—Are there any cases on record in which the long continued taking of magnesium sulphate, say a dose every other night, has caused chronic eczema? I have been doing this for about five years to hold down high blood pressure, and for the last five months both hands are broken out with a bad case of chronic ezcema which has not been benefited by any kind of treatment. This breaking out might have been started by poison ivy early this spring as I have had it at various times for forty years; however, it has never been so persistent before. What would you suggest? Please omit name. M.D., Oklahoma.

Answer.—The magnesium sulphate probably has nothing to do with the production of the eczema described in this instance. It is probably of allergic nature and it is quite possible that the present recurrence of the dermatitis is due to ivy. Recurrent dermatitis of this type is very difficult to manage. General suggestions will be of no value. Specific things must be outlined and these can be determined only by the careful examination of a competent physician.

COLLOIDAL SILVER — CALCIUM LACTATE IN NEPHRITIS — ACID TREATMENT OF HAY-FEVER

To the Editor:—Please give me the following information: 1. Discuss the use of colloidal silver, such as choleval, given intravenously in cases of inflammation or stone in the gallbladder. 2. Discuss the efficacy of large doses of calcium lactate in nephritis with edema. 3. Discuss the value of nitrohydrochloric acid in the treatment of hay-fever.

F. R. Perfect, M.D., Lykens, Pa.

Answer.—1. Choleval is claimed to be a colloidal silver preparation with the use of bile acid salt as protective colloid. It is a brownish black water soluble powder, the intravenous use of which in doses of 10 cc. of a 1 per cent solution has been advocated in inflammatory processes of the biliary passages. Its value in this condition is not established, and it has not been admitted to New and Nonofficial Remedies.

2. Calcium lactate, even in large doses, is not an important remedy in edema. Calcium chloride in higher doses is no doubt more efficient but also more disagreeable.

3. Nitrohydrochloric acid seems to have been helpful in some cases of hay-fever and to have failed completely in others. Whether the favorable effect, when such was observed, was due to accidental association, to suggestion, or to mobilization of calcium as part effect of the tendency to acidification of the system is still undecided.

INTERSTITIAL KERATITIS

To the Editor:—A girl, aged 14, developed a bilateral interstitial keratitis two years ago and was treated at a hospital at that time for a couple of months. She has been under my care since July 1, and has been given bismuth salicylate intramuscularly and a potassium iodide mixture orally. A Wassermann test made during the latter part of August was 4+. Kindly outline a detailed treatment. Is arsphenamine contraindicated in cases with keratitis; if so, why? There are no other signs of congenital syphilis. Please omit name. M.D., Saskatchewan.

Answer.—Arsphenamine is not contraindicated in interstitial keratitis, nor is it of any especial benefit above any other accepted treatment for congenital syphilis. It is the generally accepted opinion that, after the first acute stage of interstitial keratitis has passed, the systemic treatment had best be confined to mercury and the iodides, by inunction or injection. The best results are obtained by the cooperation of the ophthalmologist and the syphilologist, the latter having experience with congenital syphilis that the former lacks.

TREATMENT OF HEMORRHAGE AFTER EXTRACTION OF TEETH

To the Editor:—A woman, aged 55, has six remaining teeth, which are definitely infected and are about to be extracted. She has always had a severe hemorrhage after previous extractions—the last one four years ago. She bled severely following three surgical operations which she has undergone. The coagulation time of her blood is twelve minutes. What should be done, first, to reduce the coagulation time, and, secondly, to treat the hemorrhage after extraction? Please omit name. M.D., Connecticut.

Answer.—The coagulation period in cases of this type is usually definitely lowered by the intravenous injection of 50 cc. of a 50 per cent dextrose solution, together with the intravenous injection of 1 Gm. of calcium chloride. This may be repeated three or four times on alternate days. When the coagulation time has been brought down to five or six, or even seven, minutes, the teeth may be removed, and at the time the gum tissue should be securely sutured.

IMPOTENCE AFTER JUVENILE EXCESS

To the Editor:—A white man, aged 28, indulged in sexual excesses for ten years, beginning at the age of 16. At 26 he became engaged and gave up "running around." He married, three months ago, and found himself unable adequately to complete the sexual act. During the past two years he has put on considerable fat, which seems, however, to be normally distributed. The pubic hair has been slowly falling out during the past year, although the general distribution of hair is normal. There is no venereal history, and the Wassermann reaction is negative. A specimen shows a rather small discharge which contains numerous actively motile spermatozoa. Treatment for several weeks with testicular extracts has brought only occasional temporary help—if this can be credited to the extracts. Please give prognosis and treatment. Please omit name and address. M.D., New York.

Answer.—Symptoms of sexual exhaustion following juvenile excesses are a rather frequent occurrence. The absence of any venereal history excludes the administration of any local or antisyphilitic treatment. Testicular extracts have been found to be without effect; occasionally improvement of the productive and cohabitative sexual power is observed after repeated hypodermic administration of an extract of the anterior lobe of the pituitary body.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Eclectic Board, Little Rock, Nov. 11 and 12, 1930. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith, Ark. Regular, Little Rock, Nov. 11-12, 1930. Sec., Dr. Sam J. Albright, Searcy, Ark. Homeopathic, Eureka Springs, Nov. 11, 1930. Sec., Dr. Allison A. Pringle, Eureka Springs, Ark.

CALIFORNIA: San Francisco and Los Angeles, Dec. 10, 1930. Reciprocity examinations. Sec., Dr. C. B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

CONNECTICUT: Regular, Hartford, Nov. 11 and 12, 1930. Sec., Dr. T. P. Murdock, 147 W. Main St., Meriden, Conn. Homeopathic, New Haven, Nov. 10, 1930. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

FLORIDA: Jacksonville, Nov. 10-11, 1930. Sec., Dr. W. M. Rowlett, P. O. Box 603, Tampa, Fla.

KANSAS: Topeka, Dec. 9, 1930. Sec., Dr. A. S. Ross, Sabetha, Kan.

MAINE: Portland, Nov. 11-12, 1930. Sec., Dr. Adam P. Leighton, 192 State St., Portland, Me.

MARYLAND: Regular, Baltimore, Dec. 9-12, 1930. Sec., Dr. H. M. Fitzhugh, 1211 Cathedral St., Baltimore, Md. Homeopathic, Baltimore, Dec. 9, 1930. Sec., Dr. J. S. Garrison, 517 Old Orchard Rd., Ten Hills, Baltimore, Md.

MASSACHUSETTS: Boston, Nov. 12-14, 1930. Sec., Dr. Frank M. Vaughan, 144 State House, Boston, Mass.

NEBRASKA: Lincoln, Nov. 20-22, 1930. Sec., Mr. Ernest M. Pollard, Lincoln, Neb.

OHIO: Columbus, Dec. 1-4, 1930. Sec., Dr. H. M. Platter, 85 E. Gay St., Columbus, Ohio.

SOUTH CAROLINA: Columbia, Nov. 11, 1930. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia, S. C.

TEXAS: Waco, Nov. 18-20, 1930. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas, Texas.

UTAH: Salt Lake City, Dec. 15 and 16, 1930. Dir., Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City, Utah.

VIRGINIA: Richmond, Dec. 9-12, 1930. Sec., Dr. J. W. Preston, 803 Medical Arts Bldg., Roanoke, Va.

WEST VIRGINIA: Morgantown, Nov. 20, 1930. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

WISCONSIN: Milwaukee, Dec. 13, 1930. Basic Science. Sec., Dr. R. N. Bauer, 3410 Wisconsin Ave., Milwaukee, Wis.

Wyoming February and June Examinations

Dr. W. H. Hassed, secretary of the Board of Medical Examiners of Wyoming, reports the written examination held at Cheyenne, Feb. 3 and June 2, 1930. The examinations covered 12 subjects each. An average of 75 per cent was required to pass. Three candidates were examined and passed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine	(1929)	89.8
Hospital College of Medicine, Louisville	(1904)	75
Creighton University School of Medicine	(1910)	85.8

Dr. Hassed also reports 4 physicians licensed through reciprocity with other states and 1 by endorsement of credentials at the same meeting. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago Homeopathic Medical College	(1902)	Nebraska
Creighton University School of Medicine	(1915)	Nebraska
Univ. of Nebraska Coll. of Med.	(1927) S. Dakota, (1929)	Nebraska

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Western Reserve University School of Medicine	(1894)	Dip. End.

Minnesota April Examination

Dr. E. J. Engberg, secretary of the Board of Medical Examiners of Minnesota, reports the oral, written and practical examination held at Minneapolis, April 15-17, 1930. The examination covered 12 subjects and included 60 questions. An average of 75 per cent was required to pass. Forty-two candidates were examined and passed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
University of Georgia Medical Department	(1928)	87.4
Northwestern University Medical School	(1928)	90.6, (1929) 89.5, 92.1, (1930) 92
Rush Medical College	(1930)	91.6
University of Maryland School of Medicine	(1928)	91.1
Harvard University Medical School	(1928)	91.2
University of Minnesota Medical School	(1929)	86.4,* 90.1,* 90.2,* 90.2,* 92.3,* 94.2, (1930) 85.4, 85.6, 86.3, 87.5, 89.2,* 89.5, 90.1,* 90.2,* 90.2, 90.4, 91.2, 91.3, 92, 92.3, 93.1,* 93.2, 93.4*
St. Louis University School of Medicine	(1929)	91.4
Creighton University School of Medicine	(1929)	87.5, 88.4
Eclectic Medical College of Ohio	(1926)	88.1
Ohio State University College of Med.	(1925) 88.2, (1928)	86
University of Pennsylvania School of Med.	(1927) 91.3, (1928)	89.5
University of Pittsburgh School of Medicine	(1928)	85.3
Medical College of the State of South Carolina	(1928)	92
University of Wisconsin Medical School	(1928)	94.6

Dr. Engberg also reports 5 physicians licensed through reciprocity with other states and 2 by the endorsement of National Board credentials. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University Medical School	(1924)	Illinois
Creighton Univ. School of Med.		Nebraska
University of Virginia Departme		Virginia
University of Pittsburgh School		Penna.

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
University of Michigan Medical School	(1928)	N. B. M. Ex.
University of Pennsylvania School of Medicine	(1925)	N. B. M. Ex.

* *This applicant has received an* M.B. degree and will receive an M.D. degree on completion of one year's internship in a hospital.

Book Notices

INFANT NUTRITION: A TEXTBOOK OF INFANT FEEDING FOR STUDENTS AND PRACTITIONERS OF MEDICINE. By William McKim Marriott, B.S., M.D., Professor of Pediatrics, Washington University School of Medicine. Cloth. Price, $5.50. Pp. 375, with 53 illustrations. St. Louis: C. V. Mosby Company, 1930.

Apparently the only serious unfavorable criticism that might be made of this new contribution to infant nutrition relates to the typography of the volume. The paper is not up to the quality of the material printed on it, the type column is too wide, and the size of the book is inconvenient. The book purports to be a summary of present-day knowledge concerning the nutritional requirements of infants under normal pathologic conditions. It therefore concerns itself with growth and development, the metabolism of various ingredients of food, vitamins, the study of the stool, breast feeding, artificial feeding, the various types of substances used in feeding, disturbances resulting from malnutrition and bad feeding, and nutritional disturbances from other causes. Special chapters are, of course, devoted to highly important topics such as rickets, tetany, scurvy, disturbance of the acid-alkali balance, and the nutrition and development of the teeth. The author's style is simple, direct and above all graphic, so that he gives accurate pictures of the conditions with which he is concerned, and explicit instructions when these are available. It is taken for granted that the book is written for the medical student and the practitioner, so that it is unnecessary for the author to expand his text unduly by needless definitions or explanations. As might be anticipated, Dr. Marriott makes available fully adequate discussions of the original contributions which he himself has made to the field of nutrition. His chapter on vitamins gives within a few pages practically all that it is essential for the practitioner to know in this field. His judgments are unusually sound and conservative. He makes clear the various methods of treating cow's milk for proper use in infant feeding. He speaks directly to the point regarding commercially prepared infant foods. In the brief period since it was first made available, this book has acquired an extraordinary popularity. Perhaps the publisher will find it possible in the preparation of future editions to provide a volume more nearly approaching modern knowledge of typography.

UMSTIMMUNG ALS BEHANDLUNGSWEG. Vortragsreihe, gehalten zu Wiesbaden veranstaltet vom Wiesbadener Ortsausschuss für das ärztliche Fortbildungswesen in Preussen (Vorsitz. Prof. Dr. Determann, Schriftf. Dr. Strakosch) vom 31. März bis 5. April 1930. Herausgegeben von Prof. Dr. Determann. Paper. Price, 16 marks. Pp. 262, with 34 illustrations. Leipzig: George Thieme, 1930.

This title, which literally means "change of tone or pitch as therapeutic method," might be more freely translated as "alterative therapy." The book is a symposium chiefly on "nonspecific cell activation" by numerous prominent German students of the subject, each of whom reports the degree to which these newer methods have been found helpful in his particular field. It is led by Wolfgang Weichardt, who takes a wide view of "Umstimmungs-therapy," including in it not only sensitization but also desensitization, used, for example, in allergic conditions. He shows by experimental muscle curves how minute amounts of protein destruction products as well as colloidal metals may markedly increase the activity of cells. He also shows that pathogenic micro-organisms may be activated in their growth by similar means. In infectious diseases, therefore, the problem of nonspecific immunization is to stimulate to the highest possible degree the defensive processes without activating the growth of the micro-organisms. Ferdinand Hoff brings out the regular biphasic character of these reactions: fever, leukocytosis and acidosis, followed by reduction of temperature and leukocytes and alkalosis, and that these are nothing more or less than centrally induced changes in the vegetative nervous system in the direction of sympatheticotonia during the first phase, and parasympatheticotonia during the second phase. Alfred Schittenhelm emphasizes the high degree to which success with this method depends on the individual reactivity of the patient; and Hermann Köninger, that not only the dose and its frequency of repetition but also most especially the time in the disease process when these methods are resorted to may determine success or failure. Then there follow chapters on the alterative value of the various therapeutic agencies, such as diet, mineral waters, hydrotherapy, electricity, radiation, climate, endocrines, proteins, lipoids, other medicines, and psychotherapy, in connection with some of which there is a tendency to interpret the term "umstimmung" perhaps somewhat too liberally. The rest of the book is taken up with the discussion of the application of this therapy to the diseases of the various organs and systems by recognized clinical specialists. Enough has perhaps been cited to show that this symposium affords one the privilege of brief but intimate contact with some of the latest therapeutic hypotheses agitating some of the foremost minds of the "land of thinkers."

Two Thousand Years of Science: The Wonders of Nature and Their Discoverers. By R. J. Harvey-Gibson, C.B.E., D.L., M.A. Cloth. Price, $4. Pp. 362, with 121 illustrations. New York: Macmillan Company, 1929.

In recent years there have been numerous efforts to popularize the various sciences and to convey to the lay reader the information possessed by specialists in various fields. There have been many interpretations of medical science but less often have works appeared on such fundamental subjects as astronomy, physics, geology and practical biology. Professor Gibson has endeavored to cover these fields, using a method of approach that is chronological and historical and writing with a feeling for public interest that is well nigh journalistic. Unfortunately, he finds it impossible to portray chemistry or biochemistry without numerous specimens of formulas and diagrams which can only confuse rather than aid the average reader.

Elementary Practical Biochemistry. By W. A. Osborne, Professor of Physiology, University of Melbourne, and W. J. Young, Associate Professor of Biochemistry, University of Melbourne. Third edition. Cloth. Price, 12/6. Pp. 154. Melbourne: W. Ramsay, 1930.

This elementary textbook is intended as a preclinical companion volume to Ivan Maxwell's "Clinical Biochemistry." Each "lesson" gives a brief "theoretical" discussion of the subject matter followed by the most elementary qualitative laboratory experiments, many of which are misleading because of the qualitative character of the work and the brevity of the theoretical presentation. The authors present a great array of facts and tests in 1, 2, 3 and a, b, c orders. Almost no experimental evidence is cited to support the theoretical conclusions given. The text is too elementary for the class A schools in the United States.

Personal and Community Health. By Clair Elsmere Turner, M.A., Dr.P.H., Professor of Biology and Public Health in the Massachusetts Institute of Technology. Third edition. Cloth. Price, $2.75. Pp. 443, with 62 illustrations. St. Louis: C. V. Mosby Company, 1930.

Turner's book is well known to teachers of hygiene in secondary schools and in colleges. Both personal and community health are discussed. The material on the former is sufficiently complete to serve as a basis for a college course, although the discussion of hygiene of reproduction, difficult at any time to present, would be more useful if some of the details had been omitted. The part of the book dealing with community health is, on the whole, excellent, particularly those chapters dealing with school hygiene, industrial hygiene and public health administration. In the discussion of immunity, Ehrlich's side-chain theory has been given in some detail. In view of the present tendency to get away from such a fantastic representation of physiologic processes, it would seem unnecessary to retain so much of the material. It is unfortunate that only d'Herelle's conception of the bacteriophage is given as certainly it is not accepted by all workers in this field. Another controversial point is in regard to the cause of the common cold. It seems to be true, however, that not all colds are infectious nor are they all contagious. Anaphylaxis is a difficult subject to present even to advanced students. Perhaps less space could have been given to this and more to the subject of phagocytosis. On the whole, however, the book is an excellent one to put into the hands of college and secondary school students.

Handbücherei für das Gesamte Krankenhauswesen. Herausgegeben von Adolf Gottstein. Band I: Krankenhausbau. Bearbeitet von R. Schachner, H. Schmieden und H. Winterstein. Band II: Fachkrankenhäuser. Bearbeitet von K. Biesalski, H. Eckhardt, W. Gottstein, S. Hammerschlag, W. Mobitz, H. Ulrici und K. Wickel. Paper, 26 marks and 16 marks. Pp. 344, with 244 illustrations and pp. 266, with 73 illustrations. Band III: Sondereinrichtungen im Krankenhaus. Bearbeitet von H. Braun, K. W. Clauberg, usw., usw. Paper, 25 marks. Pp. 396, with 55 illustrations. Band V: Technik im Krankenhaus. Bearbeitet von J. Diehl, F. Eckhardt, J. Fichti, E. Seligmann, W. von Sellin und F. H. Thies. Paper, 22.40 marks. Pp. 310, with 75 illustrations. Band VI: Ernahrung Diatküchen, Kostformen. Bearbeitet von L. Kuttner, K. Isaac-Krieger und D. Kwilecki. Paper, 10.40 marks. Pp. 143, with 11 illustrations. Berlin: Julius Springer, 1930.

The German medical profession has made available a system for practically every aspect of medical practice and now offers a systematic guide to the building and control of the hospital. This appears in six volumes. The first volume deals with the general hospital; the second with special hospitals; the third, with operating rooms, x-ray rooms, pathologic and serologic departments, medical and general libraries, and similar special features of all hospitals. The fourth volume has not yet been made available. The fifth volume concerns the organization and technic of hospital conduct, and the final volume deals with nutrition and dietetics. As might be expected, each of the contributors has done his utmost to cover his subject fully. For those workers in the hospital field who can read German, the volumes will be replete with a vast amount of valuable advice and suggestions.

The Devil: An Historical Critical and Medical Study. By Maurice Garcon and Jean Vinchon. Translated by Stephen Haden Guest from the sixth French edition. Cloth. Price, $3.50. Pp. 288. New York: E. P. Dutton & Company, Inc., 1930.

The idea that an evil demon of some sort might be concerned with human diseases and responsible for most troubles has existed since the beginning of man's life upon this earth. The French philosophers who contribute to this study show how the devil belief has been invariably linked with magic and mystery, and how modern psychologists have recognized the relationship of this belief to mental disturbances. Chapters on demoniacal madness and exorcism of devils conclude the work. Recognizing the great place played by the devil in many religious beliefs, the authors conclude with a recognition of a desirable combination of medical and religious efforts in freeing men from such beliefs.

Handbuch der pathogenen Mikroorganismen. Herausgegeben von W. Kolle, R. Kraus und P. Uhlenhuth. Band X, Lieferung 43: Methoden der Tumorforschung. Von Prof Dr O. Teutschlaender und Prof. Dr. R. Werner. Einrichtung von Instituten und Laboratorien. Von Prof. Dr. L Haendel Mobile bakteriologische Laboratorien. Von Prof. Dr. R Doerr. Third edition Paper. Price, 15 marks. Pp. 637-800, with 107 illustrations. Jena: Gustav Fischer, 1930.

Methods of investigation of tumors are here discussed by two well known Heidelberg workers. Their article includes much useful information and does not give disproportionate space to trivial and discredited items. The construction and equipment of bacteriologic laboratories, topics of perennial interest, are dealt with by Haendel clearly and broadly but, as natural, with a strong Teutonic slant. Mobile bacteriologic laboratories, so important in war times and for certain kinds of exploring expeditions and epidemiologic investigations, are treated adequately by Doerr.

Congenital Club-Foot (Talipes Equinovarus). By E. P. Brockman, M.Chir., F.R.C.S., Orthopædic Surgeon, Westminster Hospital. Cloth. Price, $4. Pp. 110, with 92 illustrations. New York: William Wood & Company, 1930.

Congenital clubfoot is a common condition. The causes and treatment are still under discussion. The author presents the various theories of etiology. He believes that the cause is a failure of development of the structures of the foot independent of any extrinsic influences. This results in subluxation of the astragalocalcaneoscaphoid joint and shortening of the muscles that control the socket for the head of the astragalus. He describes pathology, anatomy and various types of deformity. The treatment of various types and at different ages is discussed. The subject matter is well chosen and the sequence is excellent. The illustrations are well selected and executed. There is a disagreement with the author's position concerning early treatment. It is a book that should be read by every orthopedic surgeon and can be read by the obstetrician and general practitioner with benefit. This book was awarded the Robert Jones gold medal given by the British Orthopedic Association.

Ergebnisse der sportärztlichen Untersuchungen bei den IX. Olympischen Spielen in Amsterdam, 1928. Herausgegeben von F. J. J. Buytendijk. Paper. Price, 12 marks. Pp. 230, with 92 illustrations. Berlin: Julius Springer, 1929.

In this volume the author cumulates some of the information concerning the condition of the body and the health of the athlete arising from studies of the athletes in the Olympic games held in Amsterdam in 1928. In those games particular provisions were made for careful study of the athletes before and after various contests were undertaken and some significant facts were established concerning the effects of athletics on the heart, the blood pressure and the condition generally. Of particular importance was the fact that the hearts of athletes are not usually enlarged but indeed are found to be somewhat smaller immediately after participation in athletic efforts. The book is illustrated with innumerable diagrams and roentgenograms which bring out fully the facts that have been mentioned.

Prosthetic Dentistry: An Encyclopedia of Full and Partial Denture Prosthesis. By Ira Goodsell Nichols, D.D.S., Lieutenant Commander, DC—V(S), USNR, Special Lecturer and Instructor in Dental Prosthesis, Dental Department, United States Naval Medical School, Washington, D. C. With collaboration of forty-five authorities. Cloth. Price, $12.50. Pp. 687, with 833 illustrations. St. Louis: The C. V. Mosby Company, 1930.

This book cannot be properly classed as a treatise on prosthetic dentistry, as it refers only to dentures, omitting crown and bridge work, which is definitely a part of prosthetic dentistry. Nor should it be called an encyclopedia, but rather a collection of articles by a miscellaneous group of forty-five teachers, practitioners and commercial men, ranging from a few excellent teachers to a number who might be classed as unknowns. The chapter headings suggest an orderly plan, but there is so much diversity of opinion that one would soon be lost if he should undertake to use this as a practical guide. It is doubtful whether any single contributor would approve of a majority of the articles selected from the writings of the others. The reading of such a book leaves the dentist in much the same position as a dental student would be at the close of a course of lectures given by forty-five different men. Most of the illustrations are from previously published articles, or from dental supply house catalogues.

Clinical Bio-Chemistry. By Ivan Maxwell, M.D., B.S., M.Sc., Lecturer in Physiology and Clinical Bio-Chemistry, University of Melbourne. Second edition. Cloth. Price, $3.60. Pp. 269, with illustrations. Melbourne: W. Ramsay, 1930.

This work is intended primarily for the medical students at Melbourne University. It presents in a well organized fashion many of the qualitative and quantitative methods in vogue in clinical laboratories. Renal efficiency is well presented from the points of view of urine formation, nitrogen retention in blood, comparison of the blood chemistry and total excretion of urea, and lastly the renal elimination tests by phenolsulphonphthalein. Glycosuria and pancreatic efficiency tests are treated in separate chapters, but the quantitative methods for urinary dextrose are old and unreliable. However, a good titration method is recommended for the blood sugar estimations. Acidosis and alkalosis are treated in a clear and concise manner. Both qualitative and quantitative tests for determining hepatic efficiency are discussed in some detail. In no cases are the methods discussed critically as to reliability and rapidity. At the close of each chapter, a list of references to authorities is given.

Heredity in Man. By R. Ruggles Gates, Ph.D., LL.D., F.L.S., Professor of Botany in the University of London (King's College). Cloth. Price, $6. Pp. 385, with 87 illustrations. New York: Macmillan Company, 1929.

This volume is not a new work but a complete revision from a more modern point of view of the author's previous work on "Heredity and Eugenics." In his preface he points out that contributions to heredity by modern medical writers are more scientific than were those of the past and that therefore the scientific progress of the subject is more rapid. The present edition covers first the general aspects of the subject, then the inheritance of anatomic abnormalities, and then blood changes, metabolic defects, allergic disturbances, special defects, mental differences and racial crossings. There is a good reference bibliography and an index. The book is also intelligently illustrated. The reader who wishes a ready reference to current research will find it here. Many topics are considered too briefly for the advanced student. There is, furthermore, no concession to the ignorance of the general reader. The book will be useful to medical and other students as a guide.

Report of the International Conference on Goiter in Berne, August 24-26, 1927. Edited by the Swiss Goiter Commission. Paper. Pp. 537, with illustrations. Berne: Hans Huber, 1929.

The conference here reported was held in Berne, Aug. 24 to 26, 1927. The American translation became available late in 1929. Led by Professor Aschoff, experts from all over the world considered various special aspects of the goiter problem. Thus the leaders on pathologic anatomy were Aschoff, Wegelin and Marine, on pathologic physiology Plummer, Breitner and de Quervain, and on etiology and epidemiology Bérard, McCarrison, Galli-Valerio and Bircher. Finally the discussion on prophylaxis was opened by von Jauregg, Muggia and Silberschmidt. The participants included several hundred physicians representing all the great nations with approximately twenty-five from the United States. The report here reviewed was prepared by Drs. S. D. and Virginia C. Van Meter. As might have been anticipated, this conference ventilated every possible aspect of the subject and every reasonable point of view and reached no certain conclusion. Neither did it establish any point not previously established. It did serve to confirm the view that pathologic forms of goiter are more frequent where simple goiter is more frequent and that the prophylactic use of iodine lowers the incidence of simple goiter. The statistical data and the exhibits were exceptionally complete.

The Right Honourable Sir Thomas Clifford Allbutt, K.C.B., M.A., M.D., F.R.C.P., F.R.S., Hon. M.D., D.Sc., D.C.L., LL.D., Regius Professor of Physic in the University of Cambridge. A Memoir. By Sir Humphry Davy Rolleston, G.C.V.O., K.C.B., M.A., Regius Professor of Physic in the University of Cambridge. Cloth. Price, $6. Pp. 314, with 3 illustrations. New York: Macmillan Company, 1929.

The name of Allbutt is familiar to most of the medical profession of the world primarily because he practiced as a physician for more than half a century. He attained one of the leading positions in medical practice available in the world. He contributed notably to progress in medical science and he was equally known for his contributions to medical history and to medical literature. The consideration of his life by Sir Humphry Davy Rolleston is written *con amore*. Unfortunately the author has adopted a chronological approach to the subject rather than the form of consideration which deals with the various aspects of Sir Thomas Allbutt's work that have been mentioned. Thus, the biography is factual rather than critical. Among the particularly interesting accomplishments of the subject of this biography are the introduction of the clinical thermometer, the preparation of a system of medicine which achieved world recognition, the delivery of numerous philosophical addresses which served to define the trend in the development of medicine, investigations in the field of medical history leading to the publication of several books of permanent value, the publication of a book on medical writing, now in its third edition, which still commands respect and admiration, and, most of all, the setting of a standard of medical practice both as a general practitioner and as a consultant, which have served and which may well continue to serve as models through the centuries. The biography is excellently annotated, so that it becomes possible for any reader who cares to pursue any aspect of the subject to make references to any special phase of the subject that may attract him. Throughout the work appear the names of leaders of medicine in Great Britain, on the continent and in the United States with whom the life of Sir Clifford Allbutt came in contact. Unfortunately, his letters were few; but such as have been available and as are incorporated in his life have the interest that might be expected from their writer. Here is a biography which every physician interested in the history of our times will find exceedingly readable and informative.

Handbuch der inneren Sekretion: Eine umfassende Darstellung der Anatomie, Physiologie und Pathologie der endokrinen Drüsen. Herausgegeben von Dr. Max Hirsch. Band II, Lieferung 8: Entwicklung und Wachstum. Von Prof. Dr. F. Gudernatsch. Paper. Price, 27 marks. Pp. 1493-1744, with 59 illustrations. Leipzig: Curt Kabitzsch, 1930.

This is an excellent monograph on growth and development, with especial reference to the rôle of the endocrine glands in these processes. Years ago the authors did some good pioneering experimental work in this field, especially on the rôle of the thyroid and the thymus in growth. In this monograph the entire literature is covered in a thoroughly critical review. The list of references occupies forty-four pages. The gaps in our knowledge are indicated. At present the weakest link is the rôle of the thymus. The author calls the thymus a "growth gland." If this is so, it probably applies at least for mammals only in the early stages of interuterine life, when accurate experimental attacks on the problem are difficult. The monograph will be useful to internists, pediatricians and biologists.

Yourself, Inc.: The Story of the Human Body. By Adolph Elwyn, Department of Neurology, Columbia University. Cloth. Price, $3.50. Pp. 320, with 70 illustrations. New York: Brentano's, 1930.

This volume constitutes another attempt to give the public information in a simple form concerning the conception, the construction and the function of the human body. The book suffers, as do almost all such works, by the necessity for an extensive new vocabulary. The work is along the lines of an excellent series of articles now appearing in *Hygeia,* entitled "Simple Lessons in Human Anatomy." Because of its somewhat technical language and concentrated character, this book is better fitted for the experienced reader than for the average man.

Sexual Reform Congress, July 1-5, 1928, Copenhagen. Proceedings of the Second Congress of the World League for Sexual Reform. Editors: Dr. Hertha Riese, Frankford/Main, and Dr. J. H. Leunbach, Copenhagen. Paper. Price, 20.00 Rmk. Pp. 307. Copenhagen: Levin & Munksgaard, 1929.

The chief subjects of discussion at the second congress on sexual reform, held in Copenhagen in 1928, were the general subject itself, sexual pedagogy, birth control and legal aspects. Representatives of Russia discussed some of the remarkable experiments now being tried by the soviets. Much was said also of companionate marriage, free love and similar topics. Most of the papers are in German.

Applied Bacteriology for Nurses. By Charles Frederick Bolduan, M.D., Director, Bureau of Health Education, Department of Health, City of New York. Sixth edition. Cloth. Price, $2. Pp. 251, with 83 illustrations. Philadelphia: W. B. Saunders Company, 1930.

This edition differs only slightly from the fifth. Material on such subjects as undulant fever, Calmette's tuberculosis vaccine, tularemia and diphtheria toxoid has been brought down to date. Of the many books intended for use in the schools of nursing, this one is among the best. It is impossible to present the subject of bacteriology in so few pages adequately except by omitting many important things or by making extremely brief discussions. The latter is the method here followed.

Miscellany

MODERN TENDENCIES IN ANESTHESIA

In a recent article on requirements of substances used for basal anesthesia, Lendle[1] has discussed the modern tendencies in anesthesia. The attempt to improve gas anesthesia has led to a new method of dosage for nitrous oxide anesthesia. Experiments with other gases led to the use of acetylene and ethylene, but on account of their explosiveness these gases have not been adopted for general use. The renewed interest in rectal and intravenous methods of anesthesia was mainly due to the introduction of a new product, tribrom-ethanol, introduced as "Avertin," and of a barbital derivative of secondary butylbrompropenylbarbituric acid, introduced under the therapeutically suggestive name "Pernocton." Attempts to produce a surgical general anesthesia with these preparations proved unsatisfactory and so they were combined with inhalation anesthetics, especially with ether. Thus, the main object of this method, namely, to do away with inhalation masks, was defeated; however, the result was a new interest in the problem of combination anesthesia. In a combined anesthesia, the basal anesthetic is of primary significance. The definition of basal anesthesia as given by the author implies that it is more than merely preliminary to anesthesia, which formerly was usually attained by a morphine injection, in that it also is the main factor in the subsequent production of general anesthesia.

In the main part of the article, Lendle discusses first in general the requirements of a basal anesthetic, namely, the velocity of its action, its duration, the regulability or control and, finally, the breadth; that is, the difference between the anesthetic and the lethal dose. Then he gives his present opinion as to what extent avertin and pernocton fulfil or fail to fulfil these requirements. Avertin is, even following rectal administration, quickly absorbed, so that the anesthetic action reaches the maximum within several minutes. This he thinks is an advantage, but points out that the short duration of its anesthetic action is not desirable, because a basal anesthetic should produce an anesthesia of a reasonable duration and of an even depth. Regarding the control of avertin, the author states that the possibility of an indirect modification of the anesthetic action by restoratives, by glycuronic acid or by other substances has not proved satisfactory, either in the animal experiment or in the practical application. Because avertin is effective only for a short time, overdosage is necessary to obtain a sufficient duration of the anesthesia and thus the difference between the anesthetic and the lethal dose is very slight. In a combination anesthesia of avertin with ether, the anesthetic as well as the lethal actions of both components are merely additive. Mixtures in certain definite proportions show a slight reduction in the lethal action. However, it is not possible to increase the breadth of the anesthesia greatly by combination of avertin with other substances. This has been asserted wrongly by some investigators.

The author's final evaluation of avertin as a basal anesthetic is as follows: The short duration of the anesthesia and the overdosage that is necessary are proof that avertin does not meet the requirements of an agent for basal anesthesia; however, it is suited for use as an agent for preliminary anesthesia. It has not been proved as yet that by combining avertin with other substances an essential improvement in the breadth of the anesthesia can be obtained. In evaluating pernocton the author criticizes the slowness of its anesthetic action, and the extremely long duration. In order to improve the velocity and at the same time to decrease the duration, intravenous injection has been recommended. But if alkali has been added in order to improve the solubility, then there exists danger of thrombosis. As to the breadth of pernocton anesthesia, it has to be stated that there really is none. Animal experiments proved that absence of all reflexes cannot be produced with doses that are not already lethal, and in the light anesthetic action the breadth is likewise not very marked. However, because of the long duration of pernocton anesthesia, comparatively small doses may be given. A direct control is of course just as impossible in the case of pernocton as in avertin, and indirect control of

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1. Lendle, L. Klin. Wchnschr. 9:1609 (Aug. 30) 1930.

pernocton by antagonistic analeptica is also ineffective. The author thinks that pernocton is even less suitable for basal anesthesia than avertin. Disadvantages are especially that total anesthesia cannot be effected with it, and that it gives rise to disgreeable complications and after-effects. However, because of the long duration of pernocton anesthesia, it may be suitable for lighter degrees of basal anesthesia.

Medicolegal

Evidence Admissible to Prove Criminal Abortion

(People v. Rongetti (Ill.), 170 N. E. 14)

Amante Rongetti was convicted of manslaughter on the basis of evidence tending to show that he had committed a criminal abortion. He appealed to the Supreme Court of Illinois. A coroner's physician testified that he made an autopsy on the body of the deceased and that he found a triangular punctured wound, about the size of the body of a fountain pen, on "the posterior fundus of the uterus," which was practically healed. In his opinion, death was caused by septic peritonitis due to an abortion, and the abortion was not necessary to preserve the life of the deceased. An embalmer testified that in embalming the body he made the puncture with his trocar. Rongetti testified on his own behalf, denying that he punctured the uterus, or that he performed any operation on the deceased, or that he did anything that could cause her to abort. His testimony was corroborated by the head nurse of the hospital. There was evidence tending to show that abortion might have resulted from violence to which the deceased was subjected prior to her admission to the hospital or from natural causes.

In the course of the trial, evidence was introduced to show that Rongetti had performed similar operations. The admission of such evidence, Rongetti claimed on appeal, was error. But, said the Supreme Court, where the intent with which an alleged offense was committed is a material element of the charge, and such intent becomes an issue on the trial, proof of former similar offenses, within reasonable limits, is admissible as tending to throw light on the intention of the accused in doing the act charged, and such evidence is competent in cases of this character. Such evidence, however, to be competent as proof of guilty knowledge, must show that the alleged similar offenses were in fact criminal offenses. Evidence of similar offenses is not admissible to prove that the defendant committed the act charged; it is to be considered only in determining the intent with which the act was done, when the jury is satisfied by other testimony that the defendant committed the act. The trial court erred, said the Supreme Court, in denying the motion of Rongetti to strike out the answer of a witness who testified that she had seen similar operations, and in allowing her to testify to her conclusion and to make general comparisons. She should have been required to testify as to the details of each of the operations to which she referred, so that the court might be able to judge as to whether or not such operations were criminal and tended to show a guilty intent in doing the act charged by the indictment.

Two physicians, testifying as experts, in answer to a hypothetical question gave it as their opinions that the hypothetical person described in the question came to her death as the result of an abortion and that such abortion was not necessary to preserve her life. Rongetti claimed that the opinions as given were incompetent and inadmissible and that these witnesses were allowed by the court to invade the province of the jury and to determine questions which the jury itself was impaneled to decide. The Supreme Court quoted with approval the principles laid down by it in *Fellows-Kimbrough* v. *Chicago City Railway Co.,* 272 Ill. 71, 111 N. E. 499, 502, as follows:

> Where there is a conflict in the evidence, as in this case, as to whether or not the party suing was injured in the manner charged, it is not competent for witnesses, even though testifying as experts, to give their opinions on the very fact the jury is to determine. Whether or not the collision or accident in this case caused traumatic neurasthenia, in the defendant in error, or caused the tumor in her breast, are ultimate facts upon which the jury must make their findings. It is no more proper, legally, for physicians to settle those questions for the jury by their direct answers than it would be for a motorman of another street car company to settle the question of negligence by testifying in broad terms that the plaintiff in error was guilty of negligence because its motorman failed to cut off the power by use of the canopy switch in time to prevent the collision. The rule in such cases is not different where hypothetical questions are put to the expert witnesses. A physician may be asked whether the facts stated in a hypothetical question are sufficient, from a medical or surgical point of view, to cause and bring about a certain condition or malady, or he may be asked whether or not a given condition or malady of a person may or could result from and be caused by the facts stated in the hypothetical question; but he should not be asked whether or not such facts did cause and bring about such condition or malady. [Citations omitted.] In cases where there is no dispute as to the manner and cause of the injury, and no dispute that there was an injury sustained by reason of the acts of which complaint is made, this court has held that a physician may then directly testify that a later malady was or was not caused by the accident or original injury, upon the same principle that he may testify that death resulted from a certain wound. [Citations omitted.]

The rule stated has never been departed from in any case in which the question was raised. The trial court in the present case was therefore in error, said the Supreme Court, in allowing the witnesses to invade the province of the jury and to testify as to ultimate facts which were for the jury to determine in this case, because there was a conflict in the evidence as to whether or not the deceased was injured in the manner charged and there was a dispute as to the manner and cause of the injury to deceased, if any, and also a dispute as to whether or not there was an injury sustained by her by reason of the acts of Rongetti of which complaint was made.

For the reason stated and others, the case was reversed and remanded.[1]

Insurance. Accident: Gonorrheal Ophthalmia.—The plaintiff suffered the loss of the sight of an eye, which became infected as a result of wiping his face on a towel on which there were gonococci or other germs He brought suit on an insurance policy that insured against injuries "effected solely through external, violent, and accidental means," and a verdict and judgment were rendered in his favor On appeal, the judgment was reversed. There is nothing in the evidence, said the Court of Appeals of Georgia, to indicate that the injury complained of was effected solely from external, violent and accidental means within the meaning of the policy sued on. The evidence does not indicate that the use of the towel effected any violent, external injury to the eye, nor that the eye had already been thus injured so as to expose it to infection from the ordinary use of the towel. Since all germ diseases, whether contagious or infectious, are contracted by taking within the body the disease organisms, an insurer might be liable for the contracting of any such diseases, whether through the mouth, nose, eye, throat or lungs, by reason of any ordinary exposure, were it not for the provision in the accident policy, which distinguishes it from a health policy, that the company is liable only for accidental injuries effected solely through external, violent means. So far as the case made out by the plaintiff showed, the gonococci became lodged and developed in the natural, normal tissues of the body, without being *in any* wise effected through external violent injury. Consequently, there could be no recovery on the policy sued on.—*Prudential Ins. Co. of America v. Herndon (Ga.), 151 S. E. 399.*

Society Proceedings

COMING MEETINGS

American Academy of Physical Therapy, Boston, November 12-14. Dr. Thomas L. Smyth, 111 North Eighth Street, Allentown, Pa., Secretary.
American Society of Tropical Medicine, Cleveland, December 27-30. Dr. Edwin Peterson, U. S. Naval Hospital, Washington, D. C., Secretary.
American Student Health Association, New York City, December 29-30. Dr. D. F. Smiley, Cornell University, Ithaca, N. Y., Secretary.
Radiological Society of North America, Los Angeles, December 1-5. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.
Society of American Bacteriologists, Boston, December 29-31. Dr. James M. Sherman, Cornell University, Ithaca, New York, Secretary.
Southern Medical Association, Louisville, Ky., November 11-14. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.
Southern Surgical Association, Lexington, Ky., December 9-12. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.
Western Surgical Association, Kansas City, Mo., December 5-6. Dr. Frank R. Teachenor, 306 E. Twelfth St., Kansas City, Mo., Secretary.

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[1] This case is again before the Supreme Court of Illinois, Rongetti having appealed from another conviction of manslaughter.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics & Gynecology, St. Louis

20: 293-440 (Sept.) 1930.

*Incidence of Puerperal Infection Due to Anaerobic Streptococci. T. K. Brown, St. Louis.—p. 300.

*Use of Local Anesthesia in Gynecologic Operations. F. H. Falls, Chicago.—p. 310.

Variability of Menstrual Rhythm and Character. S. H. Geist, New York.—p. 320.

Congenital Defects of Diaphragm with Relation to Asphyxia Neonatorum: Two Cases. C. S. Harper and O. N. Andersen, Madison, Wis. —p. 324.

*Irregularities of Fetal Heart. A. S. Hyman, New York.—p. 332.

*Spirochetes in Puerperal Fever. A. F. Lash, Chicago.—p. 348.

*Ectopic Pregnancy. B. E. Urdan, Milwaukee.—p. 355.

*Vital Capacity During Last Month of Pregnancy and Puerperium. H. C. Alward, Rochester, N. Y.—p. 373.

*Gastric Juice in Pregnancy. F. Arzt, St. Louis.—p. 382.

*Contracted Pelves and Disproportion. L. S. McGoogan, Fall River, Mass.—p. 386.

Relation of Weight of Placenta, Cord and Membranes to Weight of Infant in Normal Full-Term and in Premature Deliveries. S. B. D. Aberle, A. H. Morse, W. R. Thompson and E. H. Pitney, New Haven, Conn.—p. 397.

Analysis of 124 Cases of Low Cervical Cesarean Sections. W. C. Danforth and R. M. Grier, Evanston, Ill.—p. 405.

New Rectal Ether Analgesia Apparatus. C. O. McCormick, Indianapolis. —p. 411.

Diagnostic Lipiodol Injection into Milk Ducts Followed by Abscess Formation. E. Ries, Chicago.—p. 414.

Association of Polycythemia with Occlusion of Inferior Vena Cava: Case. H. J. Tumen, Philadelphia.—p. 417.

Fetal Monstrosity: Interesting Problem in Delivery. C. B. Lull, Philadelphia.—p. 421.

Complete Inversion and Prolapse of Uterus, Adherent Placenta Attached, Shock, Reposition, Recovery. J. J. Gill, Chicago.—p. 424.

Puerperal Infection Due to Anaerobic Streptococci.—Brown asserts that puerperal infections due to ordinary pathogenic organisms in most instances are introduced infections, and infections due to anaerobic streptococci are usually endogenous. In the well organized obstetric clinic, the problem of anaerobic streptococcal infection should be a greater one than infection due to the hemolytic streptococci and other pathogenic organisms. Good technic can practically eliminate hemolytic streptococcal infections, with some exceptions, as the recent epidemic at the Sloane Hospital for Women in New York City indicates. In the present state of knowledge, anaerobic streptococcal puerperal infections will perhaps be best reduced by using some antiseptic preparation in the vagina at the beginning of and during labor.

Local Anesthesia in Gynecologic Operations.—Falls asserts that nearly every gynecologic operation can be done under local anesthesia reinforced by scopolamine and morphine. It is not the anesthesia of choice in uncomplicated cases. It is the method of choice in certain carefully selected complicated cases. The operator must be prepared to spend more time and patience in this type of operating, and deftness and gentleness in handling tissues are of paramount importance. Major abdominal operative procedures should not be attempted by the unskilled surgeon, since complications may occur that will try the skill of an experienced surgeon. Facilities for switching to general anesthesia should be available as well as the assistance of a trained anesthetist who cooperates in the management. A combination of nerve block and local infiltration is advisable in most of the work, especially the abdominal work. Premedication with scopolamine and morphine is a valuable adjunct.

Irregularities of Fetal Heart.—Study made by Hyman of the fetal heart sounds by means of the phonocardiogram has demonstrated that the occurrence of cardiac irregularities in uterine life is not an infrequent discovery. These irregularities can be divided into three general groups, the first two of which constitute about 80 per cent of all the irregularities. The first group consists of an exaggerated physiologic disturbance of the pacemaker mechanism in which a marked sinus arrhythmia develops; this condition persists throughout childhood and finally disappears at the latter end of adolescence. It has no especial clinical significance but it should be recognized in order to make an accurate differential diagnosis from the third and more serious group of irregularities. The second group of fetal arrhythmias consists of a skipping or alteration in the regular rhythm of the heart; this intermission is probably due to an intra-uterine extrasystolic arrhythmia. The general impression seems to be that the condition is relatively unimportant, as it disappears within a few days after delivery. Hyman believes that its occurrence is evidence of a hyperirritable myocardium which may be the result of improper hygiene, poor posture, or an unsuitable dietary on the part of the mother. This type of irregularity is not difficult to discover if present, and, like the first group of irregularities, it must be differentiated from the third type. The importance of the fetal irregularities lies primarily in the further investigation of the grossly perverted types of fetal heart rhythms seen in the third group. The combined attention of both obstetrician and cardiologist must be focused on the mechanism responsible for this change in the cardiovascular system of the fetus. If this condition is due to auricular fibrillation, as is suggested by graphic studies of this disease when compared to adult types of auricular fibrillation, indications as to therapy may be made and a new avenue of approach to the possible prevention of certain types of abortion may be accomplished.

Spirochetes in Puerperal Fever.—A mixed infection of spirochetes and pyogenic organisms has been observed by Lash during the puerperium. These spirochetes are different from the Vincent's or pallida forms. The spirochetal and pyogenic puerperal fever follows a characteristic pathologic and clinical course. The diagnosis is based on the character of the lochia and on the presence of spirochetes. The therapy used in this type of infection may be considered of nonspecific and probable specific nature. The importance of studying smears and the bacteriology of the lochia in puerperal infections is illustrated. It is only by such means that definite diagnosis, prognosis and therapy may be established in the study of puerperal fever.

Ectopic Pregnancy.—Urdan has analyzed 474 cases. Previous sterility does not seem to be an important factor, as only 10 per cent fall into the group classed as primary sterility. Pelvic infection is an important etiologic factor whether an inflammatory, postabortal or postpartum infection. The two most common symptoms are pain and bleeding. When coupled with shoulder pain and fainting, the diagnosis is almost absolute. Amenorrhea of five to six weeks followed by bleeding and pain is most common, but a good number of patients had a prolonged period of bleeding with the onset of the period, while many began to bleed from one to three weeks after a normal period. The amount of bleeding is less than in threatened abortion, the blood is darker, and generally it does not clot. External hemorrhage may be a manifestation of the death of the ovum and occurs when the uterus is beginning to cast off the decidua. Curettings showing only decidua may be pathognomonic of extra-uterine gestation. The temperature shows a moderate elevation, rarely above 101 F., and the pulse rate is proportionately increased, the average being from 90 to 110. The leukocyte count is of little value, though a high count does not indicate infection when this is present after severe intra-abdominal hemorrhage The diagnosis, except in cases with severe hemorrhage, is difficult. In this series only 58 per cent were correctly diagnosed. Any change in the rhythm of the menstrual flow with bleeding and abdominal pain must make one suspect extra-uterine gestation. The sedimentation time of thirty minutes or over favors extra-uterine pregnancy rather than inflammatory adnexal disease. The Aschheim-Zondek test should prove of value in differentiating adnexal disease from extra-uterine pregnancy. Posterior colpotomy should be resorted to in differentiating pelvic abscess from hematocele. Once the diagnosis is made, operation should be immediate except in those cases in which hemorrhage has not been profuse and the patient's general physical condition (for example, cardiac status) could be benefited by appropriate preoperative treatment. Blood transfusion, if necessary, should be done and in borderline cases should be performed to shorten the convalescence and aid in restoring the patient more rapidly to her normal status. In this series tubal ruptures were almost as frequent as tubal abortions, 40.50 per cent tubal ruptures and 48.31 per cent tubal abortions. There were fourteen deaths, or a mortality rate of 2.95 per cent. Five deaths were due to the anemia and shock attendant on severe hemorrhages; two were due to secondary hemorrhage, one to eventration, two to intestinal obstruction, and four to pulmonary complications. Three of the deaths due to primary hemorrhage and one of the deaths due to secondary hemorrhage occurred before the period when blood transfusion, as a therapeutic agent, was available.

Vital Capacity in Last Month of Pregnancy and Puerperium.—Vital capacity observations were made by Alward on sixty pregnant women. In the majority of cases there was normally a gradual reduction in the vital capacity in the last month of pregnancy. This is especially noticeable during the two weeks period before delivery. Following delivery there is a fairly sharp reduction in the vital capacity with a gradual return to normal limits, which is reached by the tenth day of the puerperium and remains so throughout the following days of the puerperium.

Gastric Juice in Pregnancy.—Arzt emphasizes that free hydrochloric acid and total acid of the stomach contents are lower in pregnancy than in the nonpregnant and that this deficiency is more marked early, at the time nausea and vomiting are most common. This absence of free acid is due to the fact that it is neutralized most likely by a regurgitation of the alkaline duodenal contents into the stomach. Caffeine citrate in these cases has a marked ability to cause an increased secretion of hydrochloric acid.

Contracted Pelves and Disproportion.—Four hundred and seventy-one cases of contracted pelves or disproportion between the pelvic canal and the child are presented by McGoogan and the method of delivery analyzed, 220 patients delivering spontaneously and 251 requiring operative intervention. The maternal mortality for the group is 0.42 per cent, both deaths being due to streptococcic septicemia. The fetal mortality for the group is 10.8 per cent, of which one third were due to intracranial hemorrhage. Surgical induction of premature labor gives results that are not inferior to other methods of delivery, the fetal mortality being lower, but the maternal mortality, owing to the risk of infection, greater. In 104 cases of cesarean section there was no mother lost and the fetal mortality was only 2.8 per cent. Craniotomy is the method of choice in those patients in whom the child has died in utero or in whom such a severe grade of infection is present that cesarean section is contraindicated.

Annals of Internal Medicine, Ann Arbor, Mich.

4: 211-342 (Sept.) 1930

*Effect of General Systemic Arteriosclerosis on Heart and Systemic Circulation. G. Fahr and J. Davis, Minneapolis.—p. 211.
*Newer Aspects in Problem of Essential Hypertension. N. M. Keith and J. W. Kernohan, Rochester, Minn.—p. 217.
*Retinal Vascular Changes in Hypertension. H. P. Wagener, Rochester, Minn.—p. 222.
*Causes of Hypertension. E. T. Bell and A. H. Pedersen, Minneapolis.—p. 227.
Undulant Fever (Brucelliasis). W. M. Simpson, Dayton, Ohio.—p. 238.
*Psittacosis: Three Cases. W. W. G. MacLachlan and H. H. Permar, Pittsburgh, and C. A. Rogers, Freeport, Pa.—p. 260.
Committee on Applied Medical Science. J. M. Anders.—p. 277.
*Healing of Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 281.

Effect of Arteriosclerosis on Heart and Systemic Circulation.—Fahr and Davis made experiments which they feel prove that increased rigidity of the arterial system without changes in the diameter of the system causes no increase in the work of the left ventricle in expelling blood into and along the more rigid arterial system. In other words, arteriosclerosis not associated with increased blood pressure causes no increase in the work of the left ventricle. These experiments also prove that the volume flow of blood in a more rigid arterial system is as great as in a less rigid system. In other words, arteriosclerosis not associated with narrowing of the lumen of the arterial system is not detrimental to the volume flow of blood. It is possible that severe generalized arteriosclerosis may lead to a reduction in volume flow through the coronary arteries and thus aid in bringing on circulatory failure when the coronary arteries are already narrowed from severe coronary arteriosclerosis.

Newer Aspects in Problem of Essential Hypertension.—Keith and Kernohan feel that it behooves clinicians always to consider the diagnosis of a case of hypertension from the standpoint of the fundamental pathologic change. There are certain rare anatomic changes in the vascular system which give rise to hypertension, such as arteriovenous aneurysm and congenital stenosis of the isthmus of the aorta. In addition to the kidney they must think of other organs in the body as possibly being associated with the cause of hypertension. For instance, they must think of the thyroid gland and of the suprarenal gland together with tumors in the region of the latter. Also, they must think of the sympathetic nervous system, for vasoconstriction sometimes occurs in early cases of hypertension. Cases have actually been seen in which the condition has begun with vasoconstriction and in which, later, arteriolar thickening has appeared. Finally they must seek substances that will be effective in prevention of this vasoconstriction, or in its treatment when once it has developed.

Retinal Vascular Changes in Hypertension.—Wagener believes that it must be admitted that arterial constriction or spasm is the most dangerous element of hypertensive disease, that it may be the primary factor that results in arteriosclerosis, and that it is largely responsible, if not for the hypertension itself, at least for the retinal, cerebral and renal complications. It would seem that efforts should be directed especially to the discovery of the cause and to the relief of this tendency to arterial or, rather, to arteriolar constriction.

Causes of Hypertension.—The physiologic mechanisms concerned with the regulation of blood pressure in health and in disease are discussed by Bell and Pedersen; viz., the heart, the arteries and the arterioles, the capillaries, the vasomotor center, the vasomotor nerves, the depressor nerves, and the suprarenals. Hypertension has been produced experimentally in animals by pressor substances, increased intracranial pressure, removal of the depressor nerves, urinary obstruction, roentgen atrophy of the kidneys, and stenosis of the renal vein. Secondary hypertension of acute type occurs in man from physical exertion, sensory stimuli, increased intracranial pressure, and suprarenal tumors. Secondary hypertension of acute or chronic type occurs with glomerulonephritis, nephrosis of eclampsia, mercuric chloride nephrosis, polycystic kidneys, urinary obstruction, advanced amyloid disease, and degeneration of small renal arteries and arterioles. Secondary hypertension of chronic type is seldom seen except in association with renal disease. Obstruction in the renal circulation or obstruction of the outflow of urine seems to cause hypertension, probably through a reflex mechanism. Renal insufficiency alone does not cause a rise in blood pressure. Acute fulminating hypertension is probably a primary renal disease. Primary hypertension has its basis in inheritance. The defect inherited is an inferior vascular system which either reacts excessively to ordinary environmental stimuli or degenerates from inherent weakness.

Psittacosis.—Three cases of psittacosis are described by MacLachlan et al. clinically with necropsy observations in one case. The clinical picture may be one of atypical pneumonia or of a typhoidal state. The mortality occurs in the former, especially in older persons. The pneumonia is of the bronchial type, with collapse of lung, and the exudate is chiefly of phagocytic mononuclear cells. The most distinctive feature in the pneumonia is an hypertrophy and hyperplasia of the epithelial cells lining the alveoli. However, these cells do not enter into the formation of the exudate. The most recent work would indicate that psittacosis is caused by a filtrable virus. At present a diagnosis of psittacosis cannot be made without establishing contact, direct or indirect, with a parrot or other tropical bird.

Healing of Tuberculosis.—Pottenger concludes that tuberculosis heals as a result of the patient's immunity reaction. The efficiency of the immunity reaction is increased by repeated reinoculations. The effects of immunity are shown in the following services rendered to the host: (*a*) destruction of bacilli; (*b*) retardation of the passage of bacilli through the tissues; (*c*) elimination of bacilli through natural channels by caseation and cavity formation; (*d*) development of a state of desensitization to bacillary and nonbacillary toxins; (*e*) encapsulation or rendering inactive viable bacilli, which remain in the tissues; (*f*) ridding the body of the inflammatory products that accompany the infection, and (*g*) repair of the injury inflicted on the body by the disease. Treatment is efficacious to the extent that it is able to limit reinoculations of bacilli and bacillary protein to a minimum and create within the patient a resistance capable of coping with them as they occur.

Archives of Ophthalmology, Chicago

4: 309-452 (Sept.) 1930

Blood Picture in Keratomalacia of Adults. A. Pillat and C. S. Yang, Peiping, China.—p. 309.
Oral Infections and Relation to Diseases of Eye. H. S. Dunning, New York.—p. 315.
Trachoma and Avitaminosis. A. I. Kendall and S. R. Gifford, Chicago. —p. 322.
Glaucoma Simplex. H. C. Haden, Houston, Texas.—p. 326.
*Persistent Posterior Fibrovascular Sheath of Lens Caused by Fetal Iritis. V. M. Leech, Chicago.—p. 332.
Trephining for Buphthalmos: Case Observed for Seventeen Years. C. N. Spratt, Minneapolis.—p. 338.
*Car Sickness. J. E. Lebensohn, Chicago.—p. 342.
Keratoconus: Three Cases. E. Torok and L. D. Redway, New York. —p. 348.
Permeability of Lens Capsule to Water, Dextrose and Other Sugars. J. S. Friedenwald, Baltimore.—p. 350.
Oculogyric Crises in Postencephalitic States. A. E. Bennett and J. M. Patton, Omaha.—p. 361.
Unrecognized Retinoblastoma and Pseudoretinoblastoma. M. Cohen, New York.—p. 368.
Biochemistry of Aqueous, Lens and Vitreous. P. W. Salit, Iowa City. —p. 374.

Car Sickness.—Though car sickness is based on labyrinthine irritation, it is nevertheless true, Lebensohn believes, that errors of refraction and of muscle balance predispose a person to this malady. Hence persons so affected have probably a lowered threshold for nausea, and a digestive tract especially susceptible to further depressing influences. With the advent of smoother roads and easier riding cars and automobiles, car sickness is becoming less common. Susceptible persons will be less affected if they maintain a proper gastro-intestinal tone. Errors of refraction and muscle imbalance should be corrected. It is best not to go hungry when traveling, as the empty stomach is particularly sensitive to depressing influences. In severe cases, it may be necessary to allay the psychic tension with sedatives, while, to counteract the pylorospasm that precedes the retroperistalsis, the use of atropine is indicated. The value of sodium nitrite in seasickness has not been confirmed by British investigators.

Archives of Otolaryngology, Chicago

12: 273-412 (Sept.) 1930

Otosclerosis. E. W. Hagens, Chicago.—p. 273.
Dentigerous Cyst of Upper Jaw Involving Antrum of Highmore. A O. Freedman, Montreal, Canada.—p. 290.
*Perforation of Larynx from Tuberculous Laryngitis. M. D. Tyson, New Haven, Conn.—p. 297.
*Dentigerous Cyst of Antrum of Highmore with Unusual Characteristics. H. L. Harris and I. F. Weidlein, Cleveland.—p. 311.
Lateral Transthyroid Pharyngotomy. H. B. Orton, Newark, N. J. —p. 320.
Apparent Unilateral Absence of Sigmoid Sinus Noted at Operation. H. L. Williams, Jr., Rochester, Minn.—p. 339.
Osteitis of Petrous Pyramid of Temporal Bone Associated with Paralysis of External Rectus. I. Friesner and J. G. Druss, New York. —p. 342.
*Blood in Various Anginas. J. J. Shea, Memphis, Tenn.—p. 366.
Adenoid Sponge Holder. L. Schwartz, Jr., New York.—p. 376.
New Tonsil Forceps. M. Berger, New York.—p. 376.
Acute and Chronic Otitis Media and Sinus Thrombosis. S. J. Kopetzky, New York.—p. 377.

Perforation of Larynx from Tuberculous Laryngitis.—Seven cases of perforation of the larynx by the tuberculous process reported from 1836 to 1899 are reviewed by Tyson. Six cases reported in the same period, in which perforation of the larynx took place by a process that was probably tuberculous, but in which the evidence was not sufficiently conclusive to warrant a definite statement, are also reviewed. One case of definite tuberculous perforation of the larynx is reported. The latter is the only case reported since 1899, and the probable explanations of this are pointed out. The diagnostic points in tuberculous perforation of the larynx are discussed and are correlated with the pathologic observations.

Dentigerous Cyst of Antrum of Highmore.—The unilocular cyst seen by Harris and Weidlein completely filled the antrum, and, despite its great size, had formed no fistulous tract into either mouth or nose. There were, however, two large bony dehiscences. It contained a poorly developed supernumerary molar, indicating that the cyst had taken its origin from an aberrant tooth bud or so-called follicle. The cyst bore no direct relation to the left canine tooth, which was unerupted and missing from the arch. This tooth, anchored by a shelf of bone, lay wholly outside the cyst. This cyst was of exceptionally long growth, as evidenced by its size and the impacted canine, which normally erupts between the tenth and thirteenth years of life. It may be concluded, therefore, that the shelf of bone that anchored the tooth so securely was gradually driven into the side of its root by the slowly forming cyst over a long period of years.

Blood in Various Anginas.—Shea asserts that the toxins of the various anginas may stimulate or paralyze the hematopoietic system. He reports six cases.

Archives of Physical Therapy, X-Ray, Radium, Chicago

11: 455-510 (Sept.) 1930

Problem of Teaching Physical Therapy and Management of Hospital Departments. N. E. Titus, J. C. Elsom, F. H. Ewerhardt, D. Kobak, E. M. Kime, J. E. G. Waddington, J. S. Hibben, A. F. Tyler, G. B. Lake and A. Bachem.—p. 455.
Rational Teaching Methods in Physical Therapy. D. Kobak, Chicago. —p. 460.
Relation of Attending Physicians to Physical Therapy Department of Hospital. J. S. Hibben, Pasadena, Calif.—p. 464.
Accuracy in Measurement of Roentgen-Ray and Radium Doses. U. V. Portmann, Cleveland.—p. 470.
Physiotherapy in Relation to Surgery. R. J. Behan, Pittsburgh.—p. 476.
Magic Ultraviolet. W. T. Anderson, Newark, N. J.—p. 482.
Comparison of Biologic Effectiveness of Radiation from Mercury Vapor Lamp and from Two Arc Lamps as Made by Screened Photoelectric Cell. T. C. Angus.—p. 484.

Canadian Public Health Journal, Toronto

21: 423-474 (Sept.) 1930

Communicable Diseases and General Hospital. F. W. Jackson, Winnipeg.—p. 423.
Present Status of Child Hygiene in Ontario. J. T. Phair, Toronto. —p. 428.
International Conference of 1929 on Nomenclature of Causes of Death. E. S. MacPhail, Toronto.—p. 432.
Recent Advances in Laboratory Diagnosis and Specific Treatment of Pneumonia. M. H. Brown, Toronto.—p. 444.
Urban Sanitation. A. E. Berry, Toronto.—p. 451.

Delaware State Medical Journal, Wilmington

2: 151-166 (Sept.) 1930

Mental Hygiene Clinic in Delaware. P. F. Elfield, Farnhurst.—p. 154.

Journal of Allergy, St. Louis

1: 483-568 (Sept.) 1930

Specificity of Pollen Allergens. G. Piness and H. Miller, Los Angeles. —p. 483.
*Patch Test in Contact Dermatitis (Dermatitis Venenata). M. A. Ramirez and J. J. Eller, New York.—p. 489.
Allergy Considered as Special Type of Alkalosis. H. Beckman, Milwaukee.—p. 496
Elm Pollen as Complicating Factor in Hay-Fever. J. H. Black, Dallas, Texas, and O. C. Durham, Indianapolis.—p. 501.
*Vital Capacity in Bronchial Asthma. S. M. Feinberg, Chicago.—p. 506.
Allergic Eczema. R. M. Balyeat, Oklahoma City.—p. 516.
*Disappearance Time of Circulating Ragweed Pollen Material After Absorption from Nose and Throat. M. B. Cohen, E. E. Ecker and J. A. Rudolph, Cleveland.—p. 529
*Food Allergy and Pollen Hay Fever. A. H. Rowe, Oakland, Calif. —p. 531.
Nature of Allergy. F. M. Rackemann, Boston.—p. 536.
*Allergy Due to Silk. S. J. Taub, Chicago.—p. 539.

Patch Test in Contact Dermatitis.—The results of various methods of testing ninety-eight patients suffering from "contact dermatitis" are demonstrated by Ramirez and Eller. The patch method of testing was superior to other methods in determining sensitization to contact excitants, and particularly those of nonprotein nature.

Vital Capacity in Bronchial Asthma.—A study of the vital capacity in eighty-eight cases of bronchial asthma under varying conditions was made by Feinberg. There was a diminution in the capacity during the attack proportional to the severity of the latter. The average vital capacity between attacks was considerably decreased in adults but little altered in children. This may be interpreted as a greater tendency to complications in adults. Although the nature of this tendency has not been definitely ascertained, it is thought that emphysema is the most likely possibility. The presence of a chronic cough diminished the vital capacity still further. These and other observations seem to indicate that vital capacity determinations may be employed to great advantage in bronchial asthma to determine the progress and prognosis due to complications. This study also shows that bronchial asthma is frequently capable of producing permanent and organic changes, especially in adults, sufficiently marked to be discernible by vital capacity tests. It is suggested that bronchial asthma with its resultant complications is a disabling ailment more frequently than is ordinarily assumed.

Disappearance of Circulating Ragweed Pollen After Absorption from Nose and Throat.—By means of a modification of the Prausnitz Küstner reaction, an attempt was made by Cohen et al. to measure the disappearance time of circulating ragweed pollen material after absorption from the nose and throat. In eight out of ten nonallergic subjects the allergen could be demonstrated to be present for twenty-four hours. In no case was there any demonstrable at the end of forty-eight hours.

Food Allergy and Pollen Hay-Fever.—Rowe insists that the allergist must study the patient complaining of seasonal hay-fever from the point of view of sensitizations to other than pollen allergens. Such patients often have food sensitizations that are productive of gastro-intestinal symptoms, headaches, urticaria, eczema, asthma, and nasal congestion as well as other symptoms due to food allergy. The control of such food allergies is facilitated by the use of the elimination method of diet trial.

Allergy Due to Silk.—It is suggested by Taub that the problem of sensitization in eczema due to contact with silk and other proteins be given more attention in the examination of the patient. The results of a questionnaire sent out to a number of allergists indicate that this sensitization is more common than ordinarily considered.

Journal of Nutrition, Springfield, Ill.

3: *99-228* (Sept.) 1930

Utilization of Carbohydrate by Totally Depancreatized Dogs Receiving No Insulin. S. Soskin, Toronto.—p. 99.
*Response of Monkey (Macacus Rhesus) to Withdrawal of Vitamin A from Diet. E. B. Tilden and E. G. Miller, Jr., New York.—p. 121.
*Does Nickel Dissolved from Container During Pasteurization Catalyze Destruction of Vitamins of Milk? A. D. Pratt, Rochester, N. Y. —p. 141.
*Effect of Long Continued Parathyroid Administration on Body Calcium and Phosphorus of Albino Rats. P. L Day, Little Rock, Ark.—p. 157.
Multiple-Chamber Respiration Apparatus for Rats and Other Small Animals. F. G. Benedict, Boston.—p. 161.
Metabolism of Albino Rat During Prolonged Fasting at Two Different Environmental Temperatures. K. Horst, L. B. Mendel and F. G. Benedict, Boston.—p.' 177.
Carbohydrate Metabolism Following Guanidine Deglycogenation. F. Bischoff and M. L. Long, Santa Barbara, Calif.—p. 201.

Response of Monkey to Withdrawal of Vitamin A from Diet.—Observations are reported by Tilden and Miller on eleven monkeys kept until death on a ration containing only 6 to 12 units of vitamin A daily, and on six monkeys maintained on a similar ration, except that it contained from 250 to 700 units of the vitamin per diem. The rations were exactly similar, except that in the case of the deficient ration the butter fat used had been aerated for eight hours at 120 C. and contained too little vitamin A to be detected by quantitative tests in rats. The first symptom of illness noted in the monkeys receiving the low vitamin A ration was loss of weight, which was followed sooner or later by loss of appetite and finally by colitis and death. In one animal, extensive edema was present shortly before death. There was no xerophthalmia, sinusitis or mastoiditis, and tongue abscesses were not found in any of the animals. Histologic study of the tissues of the monkeys showed keratinization of epithelial tissue in one or more sites in nine of the eleven animals. In a few instances the cornification was extreme, but in no instance were the conjunctivae involved in the keratinizing process. Six monkeys on the control ration, with one exception, remained well and gained weight. One animal developed a nonfatal dysentery, from which it appeared to have recovered when killed. The intestine showed no gross changes at necropsy, but microscopic examination revealed parasites in the intestinal wall. These parasites were not detected in the intestines of the animals on the deficient ration which succumbed to colitis.

Nickel Dissolved from Container During Pasteurization.—Pratt's study does not indicate that nickel dissolved from the container during pasteurization catalyzes the destruction of vitamins A, B or C during the pasteurization process.

Effect of Long Continued Parathyroid Administration.—Day asserts that the long continued administration of parathyroid extract to normal growing albino rats receiving a normal diet had no measurable effect on the percentages of body calcium and phosphorus in the animals.

Journal of Preventive Medicine, Baltimore

4: *339-416* (Sept.) 1930

Meningococcus Meningitis in Detroit in 1928-1930: II. Clinical Aspects of Epidemic. J. E. Gordon and J. F. Norton, Detroit.—p. 339.
*Id: III. Biology of Causative Organisms. J. F. Norton and N. H. Broom, Detroit.—p. 355.
*Seasonal Variations in Intestinal Flora of Normal Individuals. R. Goldwasser and I. J. Kligler, Jerusalem, Palestine.—p. 361.
Factors Influencing Selective Distribution in Diphtheria. J. A. Doull, Baltimore.—p. 371.
*Typhoid Fever Apparently Spread by Boiled Lobster. G. W. Anderson and C. L. Scamman, Boston.—p. 405.
Union of Vaccine Virus and Specific Antiserum in Vitro. N. E. McKinnon, Toronto, Canada.—p. 411.

Meningococcus Meningitis in Detroit in 1928-1930.—During the 1928-1929 meningitis epidemic in Detroit, sixty-two meningococcus strains were isolated by Norton and Broom from patients and thirty-three meningococcus strains from carriers (home contacts of the patients). These ninety-five strains were all agglutinated by a polyvalent antimeningococcus serum in a dilution of 1:400.

Seasonal Variations in Intestinal Flora.—A study made by Goldwasser and Kligler of the intestinal flora of a group of normal individuals over a period of twenty months revealed the fact that at certain seasons quantitative as well as qualitative changes occur. During the winter a condition of equilibrium exists, the number of bacteria is relatively high, the moisture content is low, and cocci and anaerobic spore formers predominate. In the spring (about April or May) there is a transformation: the total number of bacteria falls, the coli preponderate and cocci and anaerobic spore formers diminish. The curve of the coli-cocci ratio follows closely that of bacillary dysentery, suggesting some relation to the same primary favorable factor, the change in the intestinal environment favoring the development of this group of bacteria.

Typhoid Apparently Spread by Boiled Lobster.—The outbreak reported on by Anderson and Scamman is noteworthy in that the disease was spread by a food not previously incriminated, that unrelated persons in four different towns were involved, and that the contamination of the food occurred indirectly from the handling of associated material that was contaminated.

Kentucky Medical Journal, Bowling Green

28: 407-470 (Sept.) 1930

Beautiful Bowling Green Prepares for Medicos. J. M. Nelson, Bowling Green.—p. 407.
Safety Factors in Management of Benign Prostatic Obstruction. T. D. Moore, Memphis, Tenn.—p. 451.
Radium and Use in Uterine Diseases. W. E. Gary, Hopkinsville.—p. 454.
Talk. W. A. Bryan, Nashville, Tenn.—p. 457.
Laryngeal Obstruction. W. A. Weldon, Glasgow.—p. 460.
Hydatidiform Mole. C. F. Clayton, Jr., Balkan.—p. 461.
Seasonal Hay-Fever Treated with Complete Relief of Symptoms: Two Cases. J. M. Kinsman, Louisville.—p. 462.
Hypertensive Heart Disease Without Hypertension; Illustrative Cases. E. F. Horine and M. M. Weiss, Louisville.—p. 464.

Laryngoscope, St. Louis

40: 627-706 (Sept.) 1930

Clinical Anatomy of Ethmoidal Labyrinth. J. P. Schaeffer, Philadelphia.—p. 627.
Nonsurgical Treatment of Ethmoiditis. J. I. Dowling, Albany, N. Y.—p. 633.
Zinc Ionization of Ethmoids. J. McCoy, New York.—p. 640.
Demonstration of Intranasal Surgery on Wet Specimen. S. Yankauer, New York.—p. 642.
External Operation on Ethmoids. E. R. Faulkner, New York.—p. 646.
Masking Effects of Interfering Tone on Deafened Ear. J. Guttman and L. B. Ham, New York.—p. 648.
Acute Otitis in Children. G. M. Van Poole, Honolulu, Hawaii.—p. 655.
Sacharomycosis of Hard Palate: Case. H. A. Laessle, Philadelphia.—p. 660.
Tonsillectomy by Eversion Method. P. S. Stout, Philadelphia.—p. 663.
Observations and Results in Adenoid and Tonsil Surgery. D. H. Jones, New York.—p. 667.

Maine Medical Journal, Portland

21: 153-166 (Sept.) 1930

Present Status of Trained Nurse. R. V. N. Bliss, Bluehill.—p. 157.
Urogenital Tuberculosis. C. N. Peters, Portland.—p. 162.

New England Journal of Medicine, Boston

203: 613-660 (Sept. 25) 1930

Health, Science and Vivisection. J. B. Deaver, Philadelphia.—p. 613.
Efficiency Problems in Applied Surgery. E. L. Hunt, Worcester, Mass.—p. 616.
*Comparing Breast-Fed and Bottle-Fed Infant. M. M. Glazier, Boston.—p. 626.
Epididymotomy for Epididymitis. C. S. Swan, Boston.—p. 631.
Tuberculosis of Hip Joint. D. S. O'Connor, New Haven, Conn.—p. 636.

Comparing Breast-Fed and Bottle-Fed Infants.—Glazier's study, though dealing with a limited number of infants, would suggest that infant mortality and frequency of infection have a definite relationship to poor economic and hygienic conditions. In group studies, "breast" or "bottle" feeding alone is not the determining factor in frequency of infection and infant mortality. The determining factors are hygienic and economic conditions. Infants in a district with poor economic and hygienic conditions have more frequency of infections, deficiency diseases, and a greater infant mortality, irrespective of breast or bottle feeding. In districts where economic and hygienic conditions are fairly good, the average bottle-fed infant does as well as the average breast-fed infant. Clinic infants have a mortality of one-half that of nonclinic infants in the same district.

Philippine Islands M. Assn. Journal, Manila

10: 311-356 (Aug.) 1930

*Typhoid Fever in Pregnancy. A. Villarama and J. S. Galang.—p. 311.
Enlargement of Thymus in Epidemic Parotitis. F. Esquivel.—p. 316.
Blood Examination Among Normal Filipinos. P. L. Cabigting.—p. 319.
Negative Lepers in First Sanitary Division, Cebu. L. B. Gomez.—p. 322.
Chlorine in Purification of Water. A. Pio de Roda.—p. 326.
Nutrition Clinic in Santa Ana Elementary School, Manila. A. Tupas, D. Belmonte and C. Cabrera.—p. 333.

Typhoid in Pregnancy.—Sixty-four patients, consisting of pregnant and puerperal women affected with typhoid, were studied by Villarama and Galang. Typhoid terminated pregnancy in about 78 per cent of their cases. The termination of pregnancy did not in any way cut short the course of the disease. Fetal mortality was 60 per cent of the fetuses born. Maternal mortality was about 26 per cent, more deaths having occurred among patients affected during the puerperium than among those affected during pregnancy. Of the three patients with positive blood culture for *Bacillus typhosus*, two recovered and one died. All the patients who had previously been inoculated with antityphoid vaccine recovered.

Physical Therapeutics, New York

48: 433-480 (Sept.) 1930

Mechanical Vibration: Status in Medicine. M. L. H. Arnold Snow, New York.—p. 433.
Physical Therapy in Institutional Practice. E. F. Otis, Melrose, Mass.—p. 442.
Cases Treated by Physical Therapy. E. C. Shattuck, New Bedford, Mass.—p. 447.
Diagnosis and Treatment of Chronic Arthritis. J. W. Torbett, Marlin, Texas.—p. 456.
Quartz Mercury Lamps: Comparison Between Water Cooling and Air Cooling. A. L. M. Dingee, Cambridge, Mass.—p. 461.

Southwestern Medicine, Phoenix, Ariz.

14: 405-456 (Sept.) 1930

Theories of Direct and Indirect Causes of Cancer and Principles of Treatment. O. H. Brown, Phoenix.—p. 408.
Cancer in Abdomen Exclusive of Pelvis. H. B. Cudgel, Phoenix.—p. 418.
Uterine Cancer. G. E. Goodrich, Phoenix.—p. 420.
Cancer of Breast. E. P. Palmer, Phoenix.—p. 422.
Malignancies in Accessible Locations. J. M. Greer, Phoenix.—p. 427.
Paget's Disease of Nipple. W. W. Waite, El Paso, Texas.—p. 429.
Nontropical Sprue. R. W. Mendelson and M. P. Bean, Albuquerque, N. M.—p. 430.

Texas State Journal of Medicine, Fort Worth

26: 333-398 (Sept.) 1930

Sacral Anesthesia in Hemorrhoidectomy. W. E. Schulkey, San Angelo.—p. 342.
Fistula in Ano, Emphasizing Two-Stage Operation. H. T. Hayes, Houston.—p. 344.
Diagnosis and Treatment of Cancer of Stomach. P. Riddle, Dallas.—p. 348.
Carcinoma of Cervix Uteri. C. O. Bailey, Dallas.—p. 351.
Intussusception. R. J. White, Fort Worth.—p. 354.
Spinal Anesthesia as Therapeutic Measure for Intestinal Obstruction. J. W. Neely, Terrell.—p. 357.
Snapping Hip. E. B. Parsons, Palestine.—p. 361.
Treatment of Urethral Strictures with Nonvacuum Electrode. J. A. Flautt, Galveston.—p. 363.
Nondiphtheritic Infectious Laryngitis. G. M. Cultra and A. J. Streit, Amarillo.—p. 364.
Do Tonsillectomy and Adenoidectomy Increase Immunity to Diphtheria? R. H. Needham, Fort Worth.—p. 369.
Problem of Tuberculosis in Infancy and Childhood. A. P. Bloxsom, Houston.—p. 371.
Effect of Infections on Peristalsis and Appetite; Outline of Appetite Management. J. G. Young, Dallas.—p. 374.
Modern Aspects of Amebic Infections. T. Miller, Dallas.—p. 377.
Present Need for Better Teaching of Obstetrics. W. R. Cooke, Galveston.—p. 379.

Virginia Medical Monthly, Richmond

57: 425-494 (Oct.) 1930

Medical Causes of Abdominal Pain. F. C. Rinker, Norfolk.—p. 425.
Intra-Abdominal Pathology Producing Pain. J. L. Rawls, Norfolk.—p. 426.
Abdominal Pain Originating in Urinary Tract. B. E. Harrell, Norfolk.—p. 430.
Abdominal Pain and Relation to Neurologic Diseases. F. H. Redwood, Norfolk.—p. 432.
Diagnosis and Treatment of Duodenal Ulcers. S. McGuire, Richmond.—p. 433.
Avertin Anesthesia. H. G. Preston, Harrisonburg.—p. 437.
New Radical Mastoid Operation. J. M. Smith, New York.—p. 440.
Pathologic Laughing and Crying. W. Freeman, Washington, D. C.—p. 442.
Acute Gangrenous Appendix and Strangulated Hernia in Five Weeks' Old Baby. H. J. Langston, Danville.—p. 446.
Ten Years of Progress in Tuberculosis. W. B. Blanton, Richmond.—p. 447.
Second But Different Type of Carcinoma Developing in Same Uterus. W. B. Huff, Roanoke.—p. 451.
Treatment of Some Surgical Infections. J. A. Gannon, Washington, D. C.—p. 455.
Lobar Pneumonia: Diagnosis Complications and Sequelae. E. G. Scott, Lynchburg.—p. 458.
Medical Treatment of Pneumonia. T. N. Davis, Lynchburg.—p. 461.
Extra-Uterine Pregnancy: Ten Cases. W. R. Payne, Newport News.—p. 464.
*Confirmatory Sign of Free Fluid in Pleural Space. M. Lasersohn, New York.—p. 469.
Cancer of Breast. B. F. Eckles, Galax.—p. 471.
Erythremia (Polycythemia Vera): Case with Autopsy. W. C. Holt, Angleton, Texas.—p. 472.
Incidence of Vincent's Angina in Study of Fifty Unselected Cases. B. N. Pittenger, Roanoke.—p. 474.

Confirmatory Sign of Free Fluid in Pleural Space.—Lasersohn says that dulness and decrease in the intensity of the breath sounds along the lateral chest wall and high in the axilla of the affected side is a confirmatory sign of free fluid in the pleural sac. Dulness with an increase in the intensity of the breath sounds in the axilla on the side that otherwise shows the classic signs of free fluid does not confirm this diagnosis, and is usually indicative of consolidation rather than of fluid. The sign is of value in the differential diagnosis of free fluid and the conditions with which it may be confused. The amount of fluid present is roughly proportional to the extent and degree of dulness and of decrease in the intensity of the breath sounds in the axilla. The high level in the axilla of free fluid due to capillarity and the compressibility of the lung periphery forms the basis for the signs of fluid in the axilla.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Children's Diseases, London

27: *161-244 (July-Sept.) 1930*

*Etiology of Juvenile Rheumatism. N. G. Hill.—p. 161.
*Therapeutic Value of Streptococcus Antitoxic Serum in Scarlet Fever. T. Toyoda, J. Moriwaki, Y. Futagi and S. Hoshizaki.—p. 181.
Metastatic Calcification: Twins Born Shortly After Attack of Smallpox in Mother. J. P. Marsden.—p 193.
Primary Hypertension in Child: Case. R. Hutchison and A. Moncrieff. —p. 201.
Cancrum Oris with Recovery and Subsequent Repair of Defect by Plastic Operation: Case. E. W. Goodall.—p. 204.
Two Cases of Connective Tissue Nevus. J. H. T. Davies.—p. 208.

Etiology of Juvenile Rheumatism.—Hill believes that acute rheumatism can be prevented, or at least its incidence considerably reduced, by children living a healthy life on a simple mixed diet, rich in milk, fruit and animal fats, and being exposed, lightly clad, to sunlight and the open air.

Value of Streptococcus Antitoxic Serum in Scarlet Fever.—The treatment of scarlet fever by means of scarlatinal streptococcus antitoxic serum proved so effective in the experience of Toyoda et al. as to reduce the death rate by half. The serum was found to have a particularly remarkable effect on the symptoms that are due to streptococcus toxin; viz., rash, fever, itching, vomiting, convulsions and palpitation of the heart. While the serum seemed to have some effect in reducing the incidence of complications, it did not appear to have any effect on complications that had already developed.

British Medical Journal, London

2: 457-504 (Sept. 20) 1930

Control of Trachoma. N. B. Harman.—p. 457.
Immunologic Problems in Septicemia. F. T. Cadham.—p. 460.
*Place of Pasteurization in Scheme of Milk Distribution. A. S. M. MacGregor.—p. 463.
Early Diagnosis of Infective Lateral Sinus Thrombosis. F. Muecke.—p. 465.
Fractures of Articular Surfaces of Knee Joint. R. Ollerenshaw.—p. 466.
*Radium in Gynecology. S. Forsdike.—p. 468.
Nodular Splenic Tuberculosis with Gross Enlargement. R. H. Hodges. —p 471.
Removal of Safety Pin from Duodenum. J. E. Schofield.—p. 471.
*Passage of Gallstones Through Abdominal Wall. A. A. Davis.—p. 471.

Place of Pasteurization in Scheme of Milk Distribution.—The systematic pasteurization of ordinary market milk intended for consumption in large urban areas is, in MacGregor's opinion, unavoidable under present conditions where milk is collected and mixed from widely scattered and varied sources, not under such scrupulous control as to eliminate the risk of chance infections—a danger that experience shows to be real. Efficient pasteurization is of real protective value against bovine tuberculosis, and this practice could not be dispensed with until tuberculosis in dairy herds has been reduced to a minimum.

Radium in Gynecology.—The total number of patients treated by radium by Forsdike was 181. In the inoperable cases the results were: palliation and prolongation of life, 134, with none cured; borderline cases, 33, with 4 cured; operable cases, 14, with 4 cured. The rate of cure in all the cases treated by radium was 4.5 per cent, or one patient out of twenty-two; in the borderline cases 12 per cent, or one patient out of eight; and in the operable cases the rate was 28 per cent, or two patients out of seven. If the advanced cases, in which no cures could be expected, are omitted there were forty-seven operable and borderline cases, of which eight were cured (17 per cent), or one patient out of six.

Passage of Gallstones Through Abdominal Wall.—Davis reports the case of a woman, aged 60, who gave a six months' history of gradually increasing jaundice and loss of weight, with clay-colored stools, dark urine, anorexia and occasional vomiting, preceded by repeated attacks of typical gallstone colic, and extending over a period of twenty-four years. She stated that during this time she had passed through her abdominal wall at intervals thirty-four stones of varying dimensions but usually of the size of small pebbles. They appeared singly or in groups of two or three. Their passage was preceded by the formation of a small swelling under the skin, which, when fomented, discharged the stones externally, leaving the sinus exuding a thick yellow fluid. Abdominal examination revealed the scars of three sinuses, one in the epigastrium and two in the right hypochondrium. A large mass present in the latter region was subsequently diagnosed at operation as an inoperable carcinoma of the gallbladder, this finding being later verified histologically.

Lancet, London

2: *617-672 (Sept. 20) 1930*

*Thermal Adjustment of Man and Animals to External Conditions. C. J. Martin.—p. 617.
Congenital Arteriovenous Fistulae. D. De Witt Lewis.—p. 621.
*Cog Wheel Breathing. G. T. Hebert.—p. 628.
Radium Treatment of Cancer of Tongue. S. Cade.—p. 630.
*Raynaud's Disease with Paroxysmal Hemoglobinuria. H. G. Bywater. —p. 632.
Retroperitoneal Fibroma Arising from Anterior Common Ligament. W. H. Ogilvie.—p. 632.
Ineffective Swabbing in Diphtheria Epidemics. G. Bousfield.—p. 633.
Artificial Pneumothorax Apparatus. G. Marshall.—p. 633.

Thermal Adjustment of Man and Animals to External Conditions.—While agreeing with Cramer and Cannon that variation in cell combustion, due to varying activity of the suprarenals and thyroid, plays a part in thermal adjustment, and believing that an adaptation of the activity of the thyroid gland is the cause of persisting increase or decrease of resting metabolism after exposure to cold or warmth, Martin thinks they incline to exaggerate the part ordinarily played by this humoral method in thermal adjustment. The experiments of Hildebrandt (1921) on rats, Grafe and Redwitz (1922) on dogs, and Isenschmid (1922) on cats show that an animal some time after thyroidectomy can regulate its temperature by varying production of heat similarly to a normal one, even when the dorsal cord is severed. True, it starts from a lower base line, but failure to compensate is not manifested until the rate of heat loss is considerable. As Isenschmid points out, the thyroid is not the only instrument at the disposal of the organism for thermal adjustment; it has a whole orchestra to play on.

Cog Wheel Breathing.—In order to attempt to clarify the position and to assess the value of cog wheel breathing as a physical sign, a study of 1,000 cases was undertaken by Hebert, consisting of 428 adult males, 409 adult females, and 163 children under 16. In 292 of these, pulmonary tuberculosis was diagnosed, while in the large majority of the remaining 708 no lung lesion was apparent. The inquiry emphasized the fact that cog wheel breathing is of two kinds. In one the interruptions are irregular; in the other they are regular or, to be more exact, they are synchronized with the beat of the heart. Breathing of the first type is uncommon and is rarely, if ever, heard as well marked waves or sharp jerks. In none of the 1,000 cases could it be ascribed to a pulmonary or pleural lesion, and, on the few occasions on which it was heard, it was noticeable only when the patient was breathing forcibly. Hebert holds that for testing the quality of breath sounds forcible respiration should not be used, and, if this rule is adhered to, irregularly interrupted breathing is so rarely heard that it ceases to be of any importance for clinical purposes. Breathing of the second type, on the other hand, is by no means uncommon and can at times be a very striking feature. It appears to be merely a physiologic phenomenon, for which "air waves" is the most suitable term. Air waves were found in 30 per cent of adult males, in 53 per cent of adult females, and in 19 per cent of children under 16 in 1,000 cases investigated. Air waves are not caused by tuberculosis of the underlying lung tissue but are a physiologic phenomenon. Their situation and the demonstration of pressure fluctuations, synchronous with cardiac systole, in the pneumothorax cavity of some patients and in the inspiratory and expiratory currents of air of others, suggest that they are caused by an expansion of the lung compensatory to the contraction of the heart. Certain cases of so-called exocardial murmurs and of pleuropericardial friction are probably merely instances of air waves.

Raynaud's Disease with Paroxysmal Hemoglobinuria.—Bywater relates the case of a child, aged 3 years, who was taken ill six months previously after being aroused from sleep suddenly in the middle of the night and frightened by the intrusion of a drunken man into the house. He had previously been in good health, his only illness having been measles in infancy.

Immediately after the alarming incident the child was noticed to have an attack of pain and coldness of his hands, feet and ears. Several attacks had since occurred, the description of a typical one being as follows: When out in the cold the child would become suddenly doubled up with pain and would cry and have to be taken home at once. The fingers, especially the index finger of one hand, the toes, and sometimes the whole foot and the pinna of both ears would become black and swollen. On arrival home after such an attack the first specimen of urine passed would be dark, but the color of the next specimen would be normal. The child would fall asleep and was frequently quite well on awakening, although nervous and frightened. Such attacks had occurred fortnightly for the past few months and had increased in severity. The case is interesting as illustrating the type of Raynaud's disease occurring in children when the process does not proceed to the stage of gangrene. The syncopal stage is extremely short and is barely noticeable, the asphyxial stage being the one observed. A profound neurotic history in the family, the influence of cold on all occasions, and the comparative rarity of the disease are interesting. It appears to be common in these cases to find a relationship with parental syphilis.

Japan Medical World, Tokyo

10: 43-62 (March 15) 1930

*Biologic Significance of Lung Journey of Ancylostoma Larvae in Normal Host. Yoneji Miyagawa and Ryoichi Okada.—p. 43.
Third Proposal to Use a Phosphoric Acid Ester-Calcium in Treatment of Pulmonary Tuberculosis. Seigo Funaoka.—p. 55.

Significance of Journey of Ancylostoma Larvae in Host.—Miyagawa and Okada have made a careful experimental study of this subject on dogs and rabbits. They found that the rate of oral infection of *Ancylostoma caninum* greatly varies according to the age of the dog. The younger the dog, the greater the rate of infection. The older the dog, the lower the rate of infection. Oral infection rate of the young worms remarkably increases when they pass through the lung of the proper host. If the larvae that gathered together in the lung of the improper host were given orally to the improper host, the greater part of them gather again in the lung of the latter. When the larvae obtained from the lung were given to the proper host, the rate of infection decreased. Young worms that passed through the lung of the proper host, even if they were given to the improper host, nearly lost their ability to come to the lung. They stay in the digestive canal and make development to a fair degree. Ancylostoma larvae, if they pass through the lung of the proper host, obtain ability not only to become adult worms in the intestine of the proper host but also to make development to some extent even in the intestine of the improper host. Summing up these facts, they think that in the case of the infection of *Ancylostoma caninum* no matter whether through the mouth or through the skin, the larvae once pass through the lung of the host and make special biologic metamorphosis and afterward they can complete their development in the intestine. In other words, they believe that the lung journey of the larvae is a preparatory action indispensable for the completion of their future development.

Archives Franco-Belges de Chirurgie, Brussels

32: 269-360 (April) 1930

Surgical Treatment of Gastric Ptosis by Suspension: Technic and Results. O. Lambret and G. Bizard.—p. 269.
*Pathogenesis of Gastroduodenal Ulcers. A. G. Weiss and C. Hubster.—p. 282.
Treatment of Duodenal Ulcers by Gastrojejunostomy Combined with Duodenal Exclusion. E. Vandeput.—p. 309.
*Electric Bistoury in Gastric Surgery. A. Gullemin.—p. 338.
Pharyngo-Esophageal Diverticula. A. Jentzer.—p. 343.

Pathogenesis of Gastroduodenal Ulcers.—Weiss and Hubster conducted a series of experiments on dogs in an attempt to ascertain the pathogenesis of gastric and duodenal ulcers. They were convinced that the duodenal reflux was in some way involved; the obvious hypothesis was that the reflux of alkaline secretions toward the pylorus and stomach tended to modify the acidity of the gastric juice and that when this alkaline reflux was in any way arrested the resulting hyperacidity of the gastric secretions irritated the mucous membranes and caused ulcers. With this in mind, the authors by a simple surgical process caused a complete deviation of the duodenal secretions in a number of dogs. Within two weeks all the dogs developed definite syndromes of chronic gastric ulcers. However, to the surprise of the investigators, the acidity of the gastric secretions was in no degree intensified. The authors believe now that the relation between duodenal deviation and gastric ulcers lies not in the degree of acidity of the secretions but in the fact that the alkaline duodenal secretions form a protective covering for the gastric and duodenal mucosas that counteracts the irritating effect of the gastric secretions. As a complement to the results obtained by duodenal deviation, deviation of bile was also effected in several dogs. This caused an intense inflammatory reaction in the duodenum and the antrum of the stomach, though not in the fundus, which resulted in acute ulcerous conditions. No large or chronic ulcer appeared, however. It seemed advisable to follow these two experiments with deviation of the pancreatic secretions; however, no satisfactory method was found at the time. Ulcers are found in human beings in the majority of cases in the duodenum, pylorus and antrum of the stomach, which are zones of alkaline or basic secretion, rather than in the fundus, which is a zone of acid secretion. This seems due to the fact that the organs of acid secretion have a stronger native defense mechanism with which to combat irritation of the mucosa. Therefore when the protective influence of the bile and pancreatic juices is removed, ulcers develop more readily in the zones of alkaline or basic secretion, since the duodenal secretions alone do not afford sufficient protection. The authors do not wish to present any dogmatic conclusions as to the cause of the conditions of reflux which seem to constitute the pathogenesis of gastric and duodenal ulcers, nor do they wish to advocate too strongly any particular treatment. They merely present the results of their research, which seem to them logical.

Electric Bistoury in Gastric Surgery.—Guillemin advocates strongly the use of the electric bistoury in gastrectomy because of its excellent aseptic and hemostatic qualities, which eliminate the former risks of infection and cause immediate coagulation of the blood vessels along the surface of the incision. A secondary value of this immediate hemostasis is the fact that the zone of operation is kept clean and it is easy to proceed from one step to the next.

Revue Française d'Endocrinologie, Paris

8: 193-316 (June) 1930

Hypophyseal Hemocrinia. J. Watrin.—p. 193.
*New Pancreatic Hormone, Vagotonin. D. Santenoise, H. Verdier and M. Vidacovitch.—p. 204.
*Hypercrinic Forms of Obestiy. C. Faelli.—p. 261.

New Pancreatic Hormone.—It has long been established that the pancreas produces and secretes a hormone that regulates and stimulates the functional activity of the vagal centers. Santenoise et al., by means of numerous and carefully performed experiments, have proved that the vagotonic power of pancreatic extracts does not belong to insulin, since the effects of insulin on the parasympathetic system are not at all constant and in many cases are negative. Moreover, they have succeeded in extracting from the pancreas a new vagotonic hormone, separated from insulin by a series of precipitations with neutral salts and alcohol.

Hypercrinic Forms of Obesity.—In addition to the forms of obesity caused by hypothyroidism, hypopituitarism and hypo-ovaria, Pende distinguishes three forms due to hypercrinism of the suprarenal cortex, the pancreas (i. e., hyperinsulinism) and the thymus. Faelli gives the clinical history of a typical case of hyperthymic obesity in a boy of 10 years, weight 53.5 Kg., height 142 cm. The fact that the child is physically robust and his body well proportioned, as well as the absence of myxedema, distinguishes this from a case of hypothyroidism. Moreover, the boy began to walk and talk and his teeth appeared at the normal age, which is contraindicative of thyroid deficiency. The lack of segmental distribution of fat and the absence of evident signs of hypopituitary modifications in physical and roentgen examinations eliminate the possibility of a diagnosis of hypopituitarism. Hypo-ovaria is also eliminated by the lack of eunuchoid characteristics of the skeleton. The genitalia resemble in size those of a child of 5 or 6 years, but this is due to prepubescent hyperthymism. The case is also distinguished from the other two hypercrinic forms of obesity. The hypercorticosuprarenal form presents certain characteristic precocious sexual developments, hypertrichosis, and intense psychic excitation, which are entirely lacking here. And in hyperinsulinism there is a lowered glycemia while fasting, while in this case the patient showed a rather high degree of glycemia during a period of fasting. In conclusion, the author feels that the congenital macrosomia, vagosthenic temperament with exaggerated appetite, low diastolic pressure, vascular hypoplasia, dexiocardia and marked obesity observed in this patient are characteristic signs of a state of hyperthymism.

Revue Neurologique, Paris

2: 193-288 (Aug.) 1930

*A Particular Anatomic and Clinical Form of Optic Neuromyelitis. G. Marinesco, S. Draganesco, O. Sager and D. Grigoresco.—p. 193.
Roentgenograms of Basal Bones of Skull in Children. V. Christiansen.—p. 229.

A Particular Form of Optic Neuromyelitis.—Marinesco et al. describe a case of a peculiar form of optic neuromyelitis that also presents some characteristics of encephalitis periaxialis. Medullary lesions were found which were clearly indicative of optic neuromyelitis. On the other hand, cerebral lesions affecting the white matter and causing myelinic disintegration with relative conservation of the axis cylinders were suggestive of Schilder's encephalitis periaxialis. The authors feel that it is difficult, if not impossible, to decide to which disease such cases belong even after careful anatomic and clinical examination. They consider these cases as links between optic neuromyelitis and Schilder's disease, which they regard as two separate infections, which have nevertheless a certain relationship.

Annali Italiani di Chirurgia, Naples

9: 615-720 (July 31) 1930

*Differential Value of Serologic and Biologic Reactions in Study of Certain Pathogenic Species of Streptothrix. O. Bartoli.—p. 615.
*Surgical Treatment of Experimental Pancreatic Diabetes by Means of Suprarenalectomy. G. Perrotti.—p. 631.
Mesenteric Cysts of Suprarenal Origin. C. Trinchera.—p. 646.
Glycemia and Hyperglycemic Curve in Simple and Complex Calculosis of Liver. G. Stirpe.—p. 665.

Differential Value of Serologic and Biologic Reactions in Study of Certain Pathogenic Species of Streptothrix.—Bartoli describes a case of infection due to *Streptothrix carnea*, observed in a man, aged 27. He isolated the fungus, studied the cultural characters and points out an accentuated macroscopic and microscopic polymorphism. These cultural data and research carried out with deviation of complement, cutireaction and intradermal reaction, in which antigens prepared from the streptothrix in question and from others secured from other institutes were employed, lead the author to think that there is a close relationship between these various types of streptothrix, so that it is difficult and at times impossible to make a subdivision or a frank classification based on cultural and serologic characters.

Treatment of Pancreatic Diabetes by Means of Suprarenalectomy.—Perrotti concludes from his experiments that the removal of a suprarenal in a dog has a marked influence on the course of experimental diabetes due to the complete removal of the pancreas; it lowers notably the glycemic curve and renders less grave the clinical symptoms of diabetes. These effects are, however, temporary, for a compensatory hypertrophy on the part of the remaining suprarenal is established and the experimental diabetes resumes its grave and fatal evolution.

Riforma Medica, Naples

46: 1189-1224 (July 28) 1930

Acute Chorea and Catalepsy. G. Marinesco, A. Kreindler and E. Cohen.—p. 1191.
A Rare Case of Phthisis Associated with Echinococcus. G. Pennetti.—p. 1194.
*Experimental Researches on Glycogenic Functioning of Liver in Traumatic Shock. A. Scarpello.—p. 1198.

Research on Glycogenic Functioning of Liver in Traumatic Shock.—Scarpello's researches induce him to conclude that in traumatic shock the increase in the blood sugar is due chiefly to an alteration of the glycoregulatory functioning of the hepatic cells. It is not easy to give an explanation of this phenomenon. It is probable that various factors act on the liver and increase the glycogenic functioning. By way of a simple hypothesis, it might be assumed that the traumatic shock acts reflexly on the functioning of the liver or in other words, that the shock causes disturbances in the field of the sympathetic nervous system, which in turn act on the hepatic cells and increase the glycogenolytic functioning. On the other hand, it is not impossible that the disturbing movements of the intestine cause an absorption by the portal system of toxic substances, which, as has been shown for various toxins (Delbet, Marmier), may stimulate the hepatic cells to an increased glycogenolysis.

Rivista di Clinica Medica, Florence

31: 605-652 (June 15) 1930

Malignant Lymphogranuloma: Case. F. Schupfer.—p. 605.
*Semeiologic and Clinical Significance of Cutaneous Telangiectasia. P. Canale.—p. 621.
Treatment of Diabetes Insipidus with Solution of Pituitary by Nasal Route. A. Lunedei.—p. 635.

Semeiologic and Clinical Significance of Cutaneous Telangiectasia.—Canale carried out a series of researches on cutaneous telangiectasia, studying its presence, its topographic disposition, its possible relation to lesions, and in the action of the internal organs. On the basis of such relation clearly demonstrable in the reported cases, the genesis of cutaneous telangiectasia, together with another series of phenomena developing in the skin (vascular and trophic manifestations and pain sensations) might find its explanation in viscerocutaneous reflexes, which, starting from the wounded organ, make their impulses felt through the nervous metamere on the corresponding dermatomere.

Archivos Argentinos de Pediatría, Buenos Aires

1: 169-232 (June) 1930. Partial Index

*Ethylhydrocupreine in Pneumococcal Meningitis. B. Moyano Navarro.—p. 198.
*Lavage of Stomach in Treatment of Pyloric Syndrome of Infants. E. Martinez Zuviria and F. Manchaca.—p. 203.

Ethylhydrocupreine in Pneumococcal Meningitis.—Moyano Navarro reports a case of pneumococcal meningitis, proved by bacteriologic examination, with purulent cerebrospinal fluid, in a child, aged 13 years, in whom recovery was obtained after three intraspinal injections, each of 5 cc. of a 2:1,000 ethylhydrocupreine solution. No visual disturbance was caused by the administration of the drug. The pneumococci rapidly disappeared from the cerebrospinal fluid after the first injection and a slow improvement in the clinical picture followed. The treatment was stopped after the second injection, but aggravation of the patient's condition led to the administration of the third injection. After this injection the patient's condition improved until recovery ensued, with restitution to normal of the cerebrospinal fluid from the bacteriologic, cytologic and chemical points of view.

Lavage of Stomach in Treatment of Pyloric Syndrome of Infants.—Martínez Zuviría and Manchaca consider lavage of the stomach a simple and efficient procedure which renders great benefits in intractable vomiting of infants caused by pyloric stenosis. The authors report the case of an infant, aged 2 months, with a grave picture of recurrent vomiting, denutrition and dehydration. A change of diet and subcutaneous injections of mother's milk (with the aim of provoking desensitization) and the administration of several drugs failed. After three lavages of the stomach (in which a large amount of glairy liquid was expelled) complete recovery ensued.

Siglo Médico, Madrid

86: 189-216 (Aug. 23) 1930

*Value of Determination of Urea Content of Saliva. S. Larregla.—p. 189.
Orthoclinostatic Reaction. J. H. Blair Callejas.—p. 190.

Value of Determination of Urea Content of Saliva.—Larregla says that saliva contains urea in variable amounts and in a concentration proportional to that of the blood, both in normal and in pathologic conditions. The author made a comparative study of the concentration of urea in the blood and in the saliva of normal persons and of patients with renal and other disturbances (nephritis, renal sclerosis, tuberculosis of the kidneys, gonococcal and colibacillary pyelitis, myocarditis with and without edema, arteriosclerosis, cirrhosis of the liver, catarrhal jaundice, cancer of the stomach, gastritis, bronchitis, acute or chronic rheumatism, gout, lymphangitis and neurasthenia). In normal persons the urea content of the saliva is just a little below that of the blood. In patients whose kidneys eliminate large amounts of urea, the urea content of the saliva is higher than that of the blood. Generally speaking, however, the values of both are so close together that the determination of the concentration of urea in saliva seems to be a simple method worthy of being popularized. The method is especially indicated in cases in which the withdrawal of blood presents difficulties. The method is contraindicated in patients with suppurative lesions of the mouth, because in those cases the amount of urea increases. The amount of saliva necessary for the determination of the urea content is from 5 to 10 cc. The saliva should be subjected to the same treatment that is used with blood when an estimation of the urea content is going to be made; viz., it is necessary to coagulate the albumins, by mixing the saliva with an equal volume of a 10 per cent solution of trichloracetic acid and then filtering it.

Deutsche medizinische Wochenschrift, Berlin

56: 1467-1510 (Aug. 29) 1930

Psychologic Examination of Witnesses. W. Stern.—p. 1467.
*Acute Ascending Spinal Paralysis During Pregnancy. R. Hornung and H. G. Creutzfeldt.—p. 1470.
Cerebrospinal Fluid in Late Syphilis. A. Wittgenstein.—p. 1474.
*Indications for Extirpation of Spleen During Childhood. H. Hirsch-Kauffmann.—p. 1476.
Surgical Diathermy in Diseases of Nose and Throat, Especially in Malignant Tumors of These Organs. W. Hesse.—p. 1479.

Acute Ascending Spinal Paralysis During Pregnancy.—Hornung and Creutzfeldt describe two cases of acute ascending spinal paralysis. The clinical aspects and the microscopic changes indicated that in one case pregnancy toxicosis had caused the disease; in the other instance, however, the disturbance was intercurrent and had the aspects of acute anterior poliomyelitis. The authors think that in cases caused by pregnancy toxicosis interruption of the pregnancy is advisable. The acute anterior poliomyelitis that occurs during pregnancy seems to be of the same severity as that observed in small children. In spite of the fact that such cases are almost hopeless, interruption of the pregnancy is nevertheless advisable in order to improve the ventilation of the lungs.

Indications for Extirpation of Spleen During Childhood.—Hirsch-Kauffmann first discusses the physiology of the spleen. In view of the great significance of the function of the spleen, it seems that its extirpation would always lead to grave disturbances; however, the spleen is only a part of a whole system and following the removal of the spleen the other parts of the system compensate for its loss. The cases in which secondary involvement of the spleen necessitates its extirpation are comparatively rare. In the literature there is reported the case of an adult in whom splenectomy became necessary on account of adhesions with an unusually large retroperitoneal lipoma. Traumatic rupture of the spleen necessitates extirpation in order to avoid fatal hemorrhage. Tumor of the spleen is not always an indication for splenectomy. In such conditions as exudative diathesis, syphilis, malaria, typhoid, sepsis and leukemia, extirpation of the spleen is contraindicated in spite of the presence of the splenic tumor, because splenectomy would weaken the diseased organism. In spite of favorable results in several cases of leukemia, splenectomy is not advisable in such cases on account of the danger of fatal hemorrhage. The engorged spleen in heart disease requires internal treatment. In cases of endocarditis lenta, in which the spleen causes a new bacterial invasion, splenectomy might be advisable not only because it eliminates the source of infection but also on account of the stimulation of the erythropoiesis and of the leukopoiesis. In discussing the various forms of anemia the author points out that in pernicious anemia, which is rare in children, splenectomy brings only temporary improvement, and in pseudoleukemic anemia, which is characteristic for small children, internal therapy brings better results than surgical intervention. In familial splenic anemia (Gaucher's disease) splenectomy has only a symptomatic significance because it effects a temporary improvement of the anemia and of the leukopenia and thrombopenia. In Banti's disease, extirpation of the spleen is particularly effective when it is done during the first two stages of the disease. In purpura haemorrhagica splenectomy has likewise proved effective. In thrombosis of the splenic or portal veins, provided the diagnosis is made early, extirpation of the spleen might save the life of the patient. Especially effective is splenectomy in congenital hemolytic icterus. The author observed favorable results in five cases and he thinks that in these cases splenectomy is the only effective therapy.

Klinische Wochenschrift, Berlin

9: 1569-1608 (Aug. 23) 1930

Are There Relations Between Hermaphrodism and Homosexuality? L. Moszkowicz.—p. 1569.
*Sedimentation Speed of Erythrocytes in Thyrotoxicoses. W. Hufschmid.—p. 1573.
Orthodiagraphic Determination of Size of Heart During Childhood. O. Kirsch.—p. 1574.
Some Little Known Possibilities for Application of Diathermy. D. Laszlo and E. Weisel.—p. 1576.
*Action of Insulin on Gastric Secretion. P. F. Meyer.—p. 1578.
Experiments on Cutaneous Manifestations Caused by Larvae of Ancylostoma Caninum. V. Ellenbogen.—p. 1583.
*Action of Caffeine in Hypoglycemic Conditions Resulting from Overdosage of Insulin. L. Popper and S. Jahoda.—p. 1585.
*Symptom of Facial Paralysis. R. Wartenberg.—p. 1587.
High Degree Increase in Thrombocytes. O. B. Bode.—p. 1587.

Sedimentation Speed of Erythrocytes in Thyrotoxicoses.—In patients with thyrotoxicosis, who received roentgen treatment, Hufschmid determined simultaneously with the basal metabolism also the sedimentation speed of the erythrocytes. He found that the sedimentation was normal in 50 per cent of the cases. The increase in the other cases rarely exceeded 4.6 per cent. The observations show that the sedimentation speed cannot be considered an indicator of the efficacy of therapeutic measures. In patients with thyrotoxicosis, who had been cured with irradiations and who before the treatment had had an accelerated sedimentation speed, the sedimentation was not always completely normalized.

Action of Insulin on Gastric Secretion.—Meyer asserts that the opinions of investigators regarding the influence of insulin on the gastric secretion differ widely. Considering that the correct understanding of this problem is not only of theoretical interest but has also therapeutic and diagnostic value, he made careful tests on fifty patients. Most of them were free from gastric disorders, but some had achylia. In the majority of the patients the metabolism was likewise normal; however, eight had diabetes. The author's observations are summed up as follows: In persons free from achylia the acidity of the stomach increases regularly from seventy-five to ninety minutes after the injection and in most instances the quantity of the gastric juice likewise increases. Control tests with protein proved that the increase is due to the insulin itself and not to the protein contained in the insulin. The increased gastric acidity following insulin injection is an early symptom or a partial manifestation of hypoglycemia, because the blood sugar curve corresponds inversely to the gastric secretion; the blood sugar is lowest when the gastric secretion is highest. Diabetic patients do not show a gastric reaction, if they do not develop hypoglycemia. However, if a person with diabetes develops hypoglycemia, then he likewise shows an increase in the gastric secretion, but usually the increase is less pronounced than in persons without metabolic disorders. Among the patients with anacidity insulin may be used to detect those with incomplete achylia. Insulin should not be employed in patients without metabolic disturbances but with hyperacidity, because the insulin will increase the acidity still more. However, insulin is helpful in the forced feeding of persons with subnormal acidity, with lack of appetite or with anacidity.

Caffeine in Hypoglycemic Conditions Resulting from Overdosage of Insulin.—Popper and Jahoda point out that insulin poisoning or the hypoglycemic syndrome can be counteracted by the administration of dextrose. This might indicate that the dextrose increases the blood sugar and thus nullifies the action of the insulin. However, it has been found that the toxic effects of overdosage of insulin may be counteracted by substances such as liquid petrolatum oil and protein that do not influence the blood sugar content. Even such substances as epinephrine, which really have a hyperglycemic action and do counteract insulin poisoning, do not become effective by way of the blood sugar. On account of its detrimental effects on the circulation epinephrine, however, is not advisable in insulin poisoning. It was discovered that caffeine has the same action on the toxic effects of insulin as epinephrine, without giving rise to undesirable complications. The authors investigated this action of caffeine in self tests and in tests on other physicians and students who were free from metabolic disorders. The results of the tests convinced the authors that the symptoms of insulin poisoning are not entirely dependent on the decrease in the blood sugar. By the administration of caffeine the manifestations of insulin intoxication may be counteracted without any changes in the decreased blood sugar. Therefore the authors assume that insulin contains a component that influences the sympathetic centers and thus causes the hypoglycemic syndrome.

Symptom of Facial Paralysis.—Wartenberg directs attention to the fact that, if a normal person closes the eyes and if an attempt is then made to lift the upper lid with the finger, one perceives a vibration in the orbicularis oculi. In facial paralysis this vibration is absent. On the basis of two years' experience with this symptom the author comes to the conclusion that it is a valuable aid in the diagnosis of peripheral facial paralysis and should be further investigated.

9: 1657-1704 (Sept. 6) 1930

Clinical Significance of Porphyrine. H. Kammerer.—p. 1658.
Pathogenesis of Brucella Abortus Infection in Man. C. Hegler.—p. 1663.
Experimental Investigations on Mixed Infections. J. Bürgers.—p. 1666.
*Freezing of Sciatic Nerve for Treatment of Juvenile Gangrene. A. Läwen.—p. 1667.
Significance of Acid Reaction of Skin: Milk Preparation for Acid Treatment in Skin Diseases. W. Scholtz.—p. 1670.
Therapy of Placenta Praevia. J. Wieloch.—p. 1672.
Graphic Representation of Peristaltic Movements of Intestine. M. Biebl.—p. 1674.
*Acid Diet for Treatment of Bronchial Asthma. K. Tiefensee.—p. 1675.
Causal Relations Between Diseases of Abdominal Organs and Renal Diseases. S. Frey.—p. 1678.
Adams-Stokes Disease: Case. G. A. Fischer.—p. 1681.
Surgical Methods for Special Physiologic Investigations. M. Biebl.—p. 1682.

Freezing of Sciatic Nerve for Treatment of Juvenile Gangrene.—Freezing of the sciatic nerve by means of a carbon dioxide apparatus was done by Läwen in three cases of juvenile gangrene. He points out that freezing of a mixed nerve has a therapeutic effect not only because of the interruption of the sensory nerve tract but also because of its influence on the vasoconstrictors. The increased temperature on the sole of the foot indicates a better blood perfusion of the peripheral vessels. If freezing is done for a sufficient length of time, the severe pains disappear immediately; in some instances there develop paresthesias of varying severity. The freezing of the sciatic nerve also shows whether the gangrene is of a benign or a malignant form. In the benign forms the gangrene does not progress after the freezing of the sciatic nerve. Another advantage of the freezing is that within several days the correct site for the amputation can be found. The author gives detailed case reports and discusses the significance of the various aspects.

Acid Diet for Treatment of Bronchial Asthma.—In order to determine whether patients with bronchial asthma incline more to acidity or alkalinity, Tiefensee tested the acidity of the urine. He found that in patients who had not been treated there were periodic changes in the hydrogen ion concentration, in the acid and in the ammonia contents. At the beginning and during the most severe stage of an attack the hydrogen ion concentration was high but the acidity and ammonia levels were low. During the attack-free interval the conditions were reversed. After the author had found that an attack of asthma could be checked when the acidity of the blood had been increased by letting the patient breathe a mixture of air containing from 5 to 8 per cent of carbon dioxide, he attempted to counteract the alkalosis by an acid diet. When the patients were placed on an acid diet with the addition of salts inducing acidity, such as ammonium chloride or ammonium phosphate, the reaction became acid and the asthma attacks became milder or ceased entirely. When patients with asthma were treated by means of the allergen-free chamber, the amount of acid excreted in the urine was likewise increased. But a complete improvement was obtained only when the acid diet was also instituted. In these cases the quantities of acid excreted in the urine were considerably larger than in patients who had not been in the allergen-free chamber. The author comes to the conclusion that even if alkalosis is not the cause of asthma, it is nevertheless a significant symptom and can be counteracted by a diet inducing acidity. He also discusses the possibility whether other means besides the acid diet may effect an acid modification of the blood and tissue reactions.

Medizinische Klinik, Berlin

26: 1281-1316 (Aug. 29) 1930

Urologic Symptoms Indicating Gynecologic Disturbances. W. K. Fränkel.—p. 1281.
Allergic Skin Diseases: Nature, Pathogenesis and Treatment. R. Wurmfeld.—p. 1284.
Relation Between Trauma and Cerebral Tumor. M. Dammer.—p. 1286.
*Treatment of Malignant Diphtheria. K. Kundratitz.—p. 1289.
Incidence of Undulant Fever in Bohemia. E. Singer.—p. 1291.
Skin Lesions in Agranulocytosis. M. Landsberg.—p. 1292.
Demonstration of Natural Defensive Substances (Alexins) in Blood Serum. O. Huntemüller.—p. 1293.
Surgical Indications in Necrosis of Extremities. Hayward.—p. 1297. C'td.

Treatment of Malignant Diphtheria.—Kundratitz reviews several theories regarding the nature of malignant diphtheria. According to some investigators who have detected streptococci in some cases, it is a mixed infection. Streptococci are not found in all instances, however, and the author is inclined to believe that malignant diphtheria is the severest poisoning with diphtheria toxins. He thinks that in this form of diphtheria the toxins are absorbed by the cells to such an extent that the antitoxin neutralization in the tissues is no longer possible. On the basis of experiments by Fröhlich and Zak, the author attempted a combination therapy with diphtheria serum and with theophylline. The latter was employed to increase the tissue permeability. The author made experiments on guinea-pigs and found that among the animals that had been subjected to the combination therapy the mortality was considerably lower than among those that had received only serotherapy. After observing favorable results in the animal experiments, he employed the combination therapy in a children's hospital; and, although not all children with malignant diphtheria could be saved, the mortality rate was nevertheless considerably lower than when only serum was administered. The author describes the technic of the treatment and points out that the circulation should be watched carefully. On account of the diuresis that may result, it is also essential that the patient receive a sufficient amount of fluids.

Monatsschrift für Kinderheilkunde, Leipzig

47: 385-576 (Aug.) 1930

*Peculiar Bone Disease in a Nursling. G. Roske.—p. 385.
Exudative Diathesis: Eosinophil Curve Following Injection of Serum. A. Strobl.—p. 401.
Extrapyramidal Diseases in Children: Microscopic Changes. F. Lotmar.—p. 417.
Id.: Etiologic Classification. J. Ibrahim.—p. 458.
Infantile Eczema: Rôle of Idiosyncrasy in Etiology. E. Moro.—p. 489.
Infectious Diseases in Children: Course of Nonspecific Inflammations. J. Becker.—p. 495.
Congenital Atonic-Sclerotic Muscular Dystrophy. O. Ullrich.—p. 502.
Effect of Digestion on Amount of Ultrafiltrable Calcium and Phosphate in Milk. O. Budde.—p. 511.
Biologic Significance of Intestinal Bacteria in Breast-Fed Infant. E. Stransky and A. Wasitzky.—p. 517.
Significance of Permeability of Mucosa of Small Intestine for Pathogenesis of Dyspepsia and Intoxications. H. Paffrath.—p. 525.
Modification of Basal Metabolism by Thymus and Spleen Extracts. A. Nitschke.—p. 530.
Effect of Various Kinds and Mixtures of Milk on Formation of Coprosterol in Intestine of Nurslings. G. Bischoff.—p. 534.
Synthesis of Ergosterol in Animal Organism. F. Hepner.—p. 539.

Peculiar Bone Disease in a Nursling.—Roske reports a case of a hitherto undescribed disease of the long bones that he observed in a nursling. The infant's parents were healthy and had one other child. The second child was born at term and weighed 7 pounds (3,175 Gm.). During the first four weeks of life he appeared normal and developed well. At the end of this time, however, the mother noticed two swellings on the right leg and a short time later a similar swelling on the left leg. The infant became restless, cried a great deal, drew the legs high up and apparently had severe pain, particularly when the legs were touched. Shortly before his admission to the hospital the swellings had become more marked but the infant did not have fever, drank well and had normal stools. A physician who was consulted made a diagnosis of a healing fracture. On admission to the hospital the infant was found to be strong and well developed with solid, regularly distributed fat pads, good turgor, and ruddy cheeks; the skin and visible mucous membranes were of normal color. The infant weighed 4,500 Gm. and was 53 cm. long; the circumference of the head was 40 cm. and of the thorax 38 cm. He held his legs drawn up on the abdomen and cried when they were handled. Both tibias were thickened in their middle third and were hard and highly sensitive; the thickenings were smooth and spindle-shaped and the overlying skin was normal and not adherent. Similar swellings could be felt also in the distal ends of both radii, but these were much smaller and less painful and involved only a small portion of the shaft. Another swelling was found in the distal end of the right humerus. The physical examination was otherwise negative, as were Wassermann reactions in the blood of both the child and the parents. Examination of the blood of the infant revealed a shifting of the leukocytes to the left. In a roentgen examination of both tibias it was found that about the shafts of both bones at the level of the external swellings there was a thick mantle-shaped shadow of almost the same density as the shadow of the shaft. Since the condition did not seem to conform to any of the known bone diseases, a biopsy was performed on the left tibia. The periosteum was found to be thickened and gelatinous but the underlying bone was of normal appearance, slightly softer than normal and highly vascularized. A delimitation between the shaft of the tibia and the overlying bone noted roentgenologically was impossible. Although macroscopically the condition resembled syphilitic periostitis, microscopic examination of the excised periosteum, pieces of bone, and bone marrow did not disclose the changes characteristic of syphilis. The swellings increased slowly in size and then, although the patient was not given special treatment, they began to decrease in size and after nine months they had disappeared completely. Despite the careful examinations and study of the case it was impossible to make a diagnosis.

Zeitschrift für klinische Medizin, Berlin

113: 553-794 (Aug. 12) 1930

Complement Content of Blood Following Physical Exercise. M. Goldner, H. Herxheimer and R. Kost.—p. 553.
Oxygen Combining Power of Blood in Metabolic and Blood Diseases. H. W. Bansi and G. Groscurth.—p. 560.
Symptomatic Polyglobulism: Properties of Blood. K. Hitzenberger and F. Tuchfeld.—p. 576.
Hemophilia: Pathogenesis. B. Stuber and K. Lang.—p. 599.
Relations Between Creatine and Carbohydrate Metabolisms. E. Koplowitz.—p. 605.
Gastric Mucus in Relation to Acid Fixation. A. Bonis.—p. 611.
*Pulmonary Tuberculosis: Acidity of Gastric Juice. E. Rave.—p. 621.
Ventricular Fibrillation: Sudden Cardiac Death. G. W. Parade.—p. 641.
Blood Pressure: Methods of Measurement. H. von Recklinghausen.—p. 663.
Fatty Degeneration of Liver: Prevention. G. Rosenfeld.—p. 713.
*Exophthalmic Goiter: Treatment with Animal Blood. A. Zimmer.—p. 724.
*Blood Smears and Differential Counting of Leukocytes. M. Plonskier.—p. 753.
Respiratory Allergic Diseases: Skin Tests. E. Matzger.—p. 759.
Modification of Circulation by Psychic Processes. W. Bier.—p. 762.
Diastase Content of Blood in Communicable Diseases. W. Grunke.—p. 782.

Acidity of Gastric Juice in Pulmonary Tuberculosis.—Rave gives the results of a study of the acidity of the gastric juice in thirty persons with moderately severe or severe pulmonary tuberculosis. He noted that the acidity seemed to be independent of the type and extent of the pulmonary process. It did, however, seem to be dependent on the duration of the disease because persons who had been under observation for a long time were always found to have either subacidity or anacidity.

Treatment with Animal Blood of Exophthalmic Goiter.—In the treatment of 120 patients with exophthalmic goiter, Zimmer used Bier's method of intramuscular injections of sheep, beef and horse blood. In even severe cases of the disease in which the patients had been under internal treatment for a long time and had been sent in for surgical treatment he was able by mean of injections of animal blood to cause a complete disappearance of the symptoms and maintain the patients free from recurrence for several years. This form of treatment, however, does not usually greatly modify the exophthalmos; severe toxic injuries of the heart and conduction disturbances are likewise not influenced. Since the size of the goiter remains unchanged, operation is indicated in all cases in which mechanical obstruction is present. In the few cases in which it was necessary to operate on the patient because of the size of the goiter, it was noted that the patients supported the operation much better than did patients who had not received treatment wih animal blood.

Blood Smears and Differential Counting of Leukocytes: Technic.—On the basis of a comparative study of the two methods of making blood smears and differential counts of leukocytes, Plonskier states that Schilling's method is not only less complicated but just as accurate as Goldmann's method.

Zentralblatt für Gynäkologie, Leipzig

54: 2113-2176 (Aug. 23) 1930

Plastic Surgery of Cervix Uteri, Particularly Sturmdorf's Method. L. Fraenkel.—p. 2114.
Influence of Abnormalities of Shape of Fetal Head on Mechanism of Birth: Occipitosacral Position. W. Bickenbach.—p. 2118.
*Pathologic Anatomy of Female Vertebral Column: Pathogenesis of Gynecologic Backache. H. Übermuth.—p. 2122.
Treatment of Gonorrhea in Women by Means of Mixed Vaccines. B. Tausch.—p. 2129.
*Ventrovesicofixation of Uterus. S. Jülich.—p. 2135.
*Tumor of Omentum. R. Joachimovits.—p. 2139.
*Expulsion of Fibromyoma Following Abortion. W. Borochowitsch.—p. 2144.

Pathologic Anatomy of Female Vertebral Column: Pathogenesis of Gynecologic Backache.—Übermuth investigated the question of whether backaches in women may be due to pathologic changes in the vertebral column. His observations are summed up as follows: In the intervertebral fibrocartilages, especially in those of the lumbar region, there develop areas of degeneration. They usually become manifest at the end of the second and at the beginning of the third decade of life. The sequelae of the degeneration, such as disintegration of the nuclei, formation of cartilaginous nodules and degeneration of the medullary connective tissue, may lead to spondylitis deformans. Changes developing with advancing years lead to a decrease in the elasticity, and this results in an uneven distribution of pressure and traction forces on the vertebral column. Such unequal burdening may cause pains in the periosteum-muscle apparatus. These conditions alone may cause backache, but besides these there are certain factors that influence the female vertebral column; namely, pregnancy, certain occupations, and a protective position that is assumed in some gynecologic diseases.

Ventrovesicofixation of Uterus.—Jülich points out that among the numerous surgical methods that are employed for the correction of the position in retroflexion of the uterus there are few that give entirely satisfactory results. A modification of Olshausen's method that was first employed by Werth, he considers as the most advantageous. He describes the technic as follows: After the abdominal cavity has been opened by means of Pfannenstiel's incision, the uterus is drawn toward the back and upward, so that the plica vesico-uterina is brought out. With the aid of clamps placed along the plica, the peritoneal covering of the plica, by means of a catgut suture, is made into a ruff. This suture also grasps the uterus below the attachment of the round ligament. A catgut suture is then put around the ligaments near where they leave the uterus, and on the anterior wall of the abdomen the suture grasps besides the peritoneum also the sheath of the rectus, the rectus muscles and the fascia. While the abdominal wall sutures are drawn, the vesical ruff suture is made. Then follow the abdominal wall sutures from the inside, and the two last knots are connected by a continuous catgut suture. It was pointed out that the connection of the uterus with the bladder might be a disadvantage during pregnancy in that during enlargement of the uterus the bladder might likewise be forced upward. However, observations on patients who underwent the operation did not justify this fear, for none of them complained of bladder trouble, and examinations likewise did not reveal abnormalities. That bladder disorders do not develop is due to the fact that not the bladder itself but rather its peritoneal covering is connected with the uterus. Another thing that was feared was that the vesical ruff suture might become cicatrized and might hinder the enlargement of the uterus. However, the author did not observe this complication and he thinks that in Werth's method of ventrovesicofixation the danger of formation of a scar tissue ligament is not more pronounced than in other methods. He gives several case reports and then compares Werth's method with several others. In most of them the results are far less favorable. The Alexander-Adams operation is perhaps the best method when pregnancy and confinement are considered, in that it reestablishes entirely normal anatomic conditions. However, a disadvantage of the method is that the uterus frequently resumes the old retroflexion. The author comes to the conclusion that Werth's method gives the most favorable results.

Tumor of Omentum.—Joachimovits reports the case of a woman, aged 66, who had a tumor of the omentum. He gives the anamnesis and describes the symptoms and the operation. The microscopic examination of the tumor revealed a fibromyoma. The author reports this case not only because tumors of the omentum are comparatively rare but also because of the typical gynecologic anamnesis (twenty years previously supravaginal myoma operation) and on account of the differential diagnosis.

Expulsion of Fibromyoma Following Abortion.—Borochowitsch reports the case of a woman, aged 27. The anamnesis revealed two spontaneous births several years previously, and an artificial abortion in the second month of pregnancy ten months previous to the hospitalization. Her present ailment had begun two months before she came to the hospital. Examination revealed a uterus enlarged as in a gravidity during the fourth month; the cervix uteri was dilated and the os uteri was open. By means of the abortion forceps the ovum was removed. It showed the development of the second month of pregnancy. Curettage and examination of the uterine cavity revealed a tumor on the posterior wall. Six days after the abortion the patient was discharged from the hospital. However, ten days later she complained of severe pains, and examination revealed that the tumor extended into the cervix uteri. On account of the size of the tumor and its location, supravaginal amputation was done in preference to the vaginal operation. The tumor had a circumference of 25 cm. Microscopic examination revealed a fibromyoma. The author thinks that the submucous myoma had caused the abortion and that the contractions of the uterus had caused the expulsion of the tumor.

Acta Rheumatologica, Amsterdam

2: 1-26 (May) 1930

*Suggestions for Investigation of Rheumatic Cases. R. F. Fox.—p. 4.
Joint Diseases in Animals and in Man. J. Wester.—p. 7.
*Rheumatic Conditions in Animals and Men. J. Wester.—p. 10.
Idem. J. Wester.—p. 11.
Metabolic Changes in Rheumatic Diseases. K. Harpuder.—p. 11.
Acute and Chronic Rheumatism in U. S. S. R. G. Danischewski.—p. 16.

Suggestions for Investigation of Rheumatic Cases.—As the data and experience of workers scattered over many countries are now being compared and discussed, Fox feels that it would be convenient if all students of rheumatism could abandon for the present all attempts at definition and describe their cases in clinical groups or types. He suggests that the principle of age groups should be followed. Age profoundly modifies all rheumatic conditions. In such age groups cases are recorded in tabular form, arranged in columns showing family and personal history, factors of causation, mode of onset, organic and functional abnormalities, and so on. In his own experience these age groups have become characteristic clinical types, with a differing etiology. He invites workers in arthritis to divide their cases into: 1. Arthritis of the young, a disease mainly in women. 2. Arthritis in middle age, in both sexes, and with particular incidence in women at the climacteric. 3. Arthritis in the old. Another mode of grouping cases will appeal to those who are in charge of treatment centers—the therapeutic classification. Conditions of ill health that react similarly under treatment are either of a similar nature or in a similar phase of disease. If a hundred patients with arthritis were submitted to the same treatment they could be usefully classified according to the reactions that they manifested.

Rheumatic Conditions in Animals and Men.—Wester discusses the etiology of: (*a*) genuine idiopathic chronic arthritis deformans; (*b*) arthritis deformans juvenilis (Perthes); (*c*) chronic arthritis deformans after acute polyarthritis, and (*d*) acute polyarthritis. He points out that it is more or less a question of chance if the bacilli are found in the synovia in the bacterial articular infection and therefore does not think it justifiable, when no bacteria are present in the synovial fluid, to come to the conclusion that an arthritic process is not bacterial but toxic, which is the tendency in pathologic conditions (focal infection) in man.

Hospitalstidende, Copenhagen

73: 693-720 (June 26) 1930

*Diagnostic Value of Colloid Reactions in Cerebrospinal Fluid. A. V. Neel and P. Dickmeiss.—p. 697.
*Gastric Glioma: Case. S. Harild.—p. 706.
Distribution of Lead in Organism. S. Lomholt.—p. 713.

Diagnostic Value of Colloid Reactions in Cerebrospinal Fluid.—Neel and Dickmeiss state that the colloid reactions give no information in differential diagnosis beyond that afforded by determination of the albumin. They therefore see no reason for introducing these reactions into the routine laboratory examinations of the spinal fluid when, in addition to cell count and Wassermann test, quantitative globulin-total albumin determination is made.

Gastric Glioma.—In this typical case, in a woman, aged 72, with *probable diagnosis of ovarian cyst with a long pedicle,* laparotomy revealed a tumor the size of a child's head, situated in the lesser curvature and posterior wall of the stomach. Resection of the stomach was necessary for removal of the tumor. The microscopic diagnosis was peripheral glioma ("schwannoma"), presumably benign. Complete recovery followed. Harild says that the possibility of malignant transformation of a glioma is slight but there is danger of profuse bleeding on rupture of the necrotic cysts, and unless operative treatment is otherwise contraindicated, the tumor should be removed; often only a minor intervention is necessary. The outlook for permanent recovery after removal of the tumor is good.

73: 721-748 (July 3) 1930

*Cutaneous Reflex Hyperalgesia of Thighs in Inflammation of Adnexa in Women. O. Jersild.—p. 721.
*Experiments on Rats with Diet Deficient in Carbohydrates and Vitamin B. S. V. Gudjonsson and A. M. With.—p. 733.
Length of Life of Consumptives with Tubercle Bacilli in Sputum. C. J. Jacobson.—p. 738.

Cutaneous Reflex Hyperalgesia of Thighs in Inflammation of Adnexa in Women.—Cutaneous hypersensibility of the thighs was demonstrated by Jersild in about 70 per cent of fifty cases of acute salpingitis or exacerbations of old inflammations in the adnexa. The hyperalgesia has a typical and constant localization on the lateral aspect of the thigh, somewhat forward, between the middle and lower thirds of the femur. The tenderness is not equally marked in the hyperalgesic zone, but there is a maximal point, always about from 12 to 15 cm. above the knee. Two cases are described.

Experiments on Rats with Deficient Diet.—In these experiments on rats fed on vitamin B, Gudjonsson and With found that the animals also without carbohydrates in their diet fared better than those with starch, and sometimes lived up to twenty weeks. Those to whose diet yeast was added were normal. The studies are to be continued.

73: 749-760 (July 10) 1930

*Studies on Jaundice. T. Geill.—p. 749. C'td.
*Iso-Agglutinin Content of Retroplacental Blood. C. Hamburger.—p. 757.

Studies on Jaundice.—Geill's material comprised 43 ambulant patients, 31 of whom had acute epidemic hepatitis. Of the 15 women only 3 had bradycardia, of the 28 men, 21. Hypotension was noted in 10 women and 12 men. The diastolic blood pressure was reduced in some cases with normal systolic pressure, so that the pulse amplitude was increased. The frequent capillary pulse is attributed mainly to a dilatation of the small vessels but also in some cases to the relatively large pulse amplitude.

Iso-Agglutinin Content of Retroplacental Blood.—Hamburger determined the iso-agglutinin content of retroplacental and cubital blood in sixty cases and found a marked reduction in the retroplacental blood of the agglutinin homologous with the blood corpuscles of the fetus. It is suggested that a slight mixture of liquor amnii with the retroplacental blood may explain this phenomenon.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 95, No. 20 CHICAGO, ILLINOIS NOVEMBER 15, 1930

THE RÔLE OF THE CLINICAL PATHOLOGIST *

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It is evident from the title of my paper that the Section on Pathology and Physiology may not have followed precedent in honoring me by election to the chairmanship of the section. The last chairman was a physiologist, and according to custom I should be a pathologist. However, as my field is distinctly known as "clinical pathology," I shall present for your consideration my views as to the relationship of the clinical pathologist to the physiologist and to the medical profession in general.

This section of the American Medical Association has existed in its present form for almost thirty years, and it came into being as part of the evolution of modern medicine. It represents the realization of ideas somewhat vaguely formed in the minds of the early founders of the Association. As you know, the American Medical Association grew out of the meetings of the National Medical conventions held in 1846 and 1847. The first meeting of the American Medical Association as such was in Baltimore in 1848. The history of the Association can be easily traced by referring to the transactions which were published yearly. The name of Nathan Smith Davis appears most prominently throughout the proceedings in those early years. At a meeting in Philadelphia in May, 1855, a resolution was introduced by Nathan Smith Davis advocating the separation of meetings into business sessions in the morning and scientific sessions in the afternoon. These resolutions were considered the next year (1856), at the first meeting ever held in Detroit. They were not received entirely with favor, because, as stated in the committee's report: "To a few who are gifted with colloquial powers, and to others who have undergone the discipline required to fit them for public debate, the interest of the meetings conducted upon the plan proposed in the resolutions would be greatly increased, but as the great body of the Association would, voluntarily it is true, be excluded from participating in these exercises, the enthusiasm which now characterizes our anniversaries would subside, and with it the professional *esprit de corps* . . . the Committee respectfully asks to be excused from submitting a distinct proposition on the subject."

The plan was subsequently adopted, and it is interesting to note that the Detroit meetings have always been of great importance to the American Medical Association. At the second meeting of the National Medical Association in 1847, it was proposed to have a Section of Medical Jurisprudence, Hygiene and Physiology. The sections of the Association seemed to have consisted really of committees to stimulate interest in, and to make reports on, subjects pertaining to the fields mentioned. The first activity of such a section seems to have been at Baltimore, in 1866. However, there was no discussion of anything pertaining to physiology. At the Washington meeting in 1870, just sixty years ago, Joseph G. Richardson, microscopist to the Pennsylvania Hospital, Philadelphia, presented a paper entitled "On the Cellular Structure of the Red Blood Corpuscle." This paper, presented before the Section of Medical Jurisprudence, Hygiene and Physiology, stimulated the appointment of a committee with Richardson as a member to make microscopic research on the structure of the white blood corpuscles and to report at the next meeting of the Association. The report was not made until two years later. That the Association manifested great interest in physiology at the Washington meeting was also evidenced by the fact that Dr. Henry Noel was requested to prepare a paper "on such physiological subject as he may select to be read before the next meeting." It was also moved that the permanent secretary be asked to urge members to write papers on physiology to be read before the Section of Medical Jurisprudence, Hygiene and Physiology.

The next meeting was in San Francisco in 1871. It appears that the section was not active at this meeting but the prize essay of the Association by Edward H. Taylor was on "The Chemical Constitution of Bile." Taylor chose as a motto for his thesis, probably facetiously, the significant quotation from Burton's Anatomy of Melancholy, "'Tis hard, I confess, yet nevertheless, I will adventure through the midst of these perplexities and, led by the clew or thread of the best writers, extricate myself out of a labyrinth of doubts and errors."

At the meeting in Philadelphia in 1872, the Section of Medical Jurisprudence, Hygiene and Physiology presented Richardson's "Report on the Structure of the White Corpuscle." Henry Harthorne, chairman of the Committee on Arrangements, read a paper entitled "On the Present Condition of Vasomotor Physiology." His committee also announced as an attraction the preparation of a museum, or collection of objects of scientific and professional character, and also an exhibition of microscopes and microscopic objects offered by the biologic and microscopic section of the Academy of Natural Sciences.

At St. Louis, in 1873, a special committee reported on "A plan for the better arrangement of the sections and for the more rigid examinations of papers offered for publication." It was resolved that the Association meet for business sessions from 9:30 a. m. until 1:30 p. m. and that the sections meet from 3 p. m. to 5 p. m. for presentation of papers. The proposed sections were:

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* From the Section on Clinical Pathology, the Mayo Clinic.

* Chairman's address, read before the Section on Pathology and Physiology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

1. Section of Practical Medicine, Materia Medica and Physiology.
2. Section of Obstetrics and Diseases of Women and Children.
3. Section of Surgery and Anatomy.
4. Section of Medical Jurisprudence, Chemistry and Psychology.
5. Section of State Medicine and Public Hygiene.

The meeting in 1874 was in Detroit. Nathan Smith Davis was the first chairman of the Section of Practical Medicine, Materia Medica and Physiology, and the plan that he had proposed eighteen years before and which had received little encouragement at the former Detroit meeting was put into effect. It might be mentioned in passing that the newly formed Section of Medical Jurisprudence, Chemistry and Psychology had two meetings in Detroit. At the first session only the chairman and secretary were present, and the meeting was adjourned. At the next session there were four members present, including the officers. The chairman and secretary each read a paper and the meeting was adjourned.

Joseph M. Toner, in the presidential address, estimated the number of separate diseases known to the profession to be 2,400. He prophesied that this number would be reduced as knowledge of physiology and pathology advanced. He furthermore stated, "There are some hundreds of young physicians, of first-class ability, noted for their originality of thought and boldness of investigation, residing in different parts of our country, who are working with scalpel, the microscope, and test-tube in the spirit of true philosophers. But where we have ten such, we ought to have a hundred. It is from among such must come the leading medical men of the future."

For another eighteen years the sections met as planned. During this time most of the papers on pathology were presented in the Section of Surgery and Anatomy. In 1892, again in Detroit, a new section went into effect, the Section of Physiology and Dietetics, which continued for eight years. In 1900, on a resolution of Dr. Hektoen, the Section of Pathology and Bacteriology was formed. The next year, however, in St. Paul, the Section of Physiology and Dietetics and the Section of Pathology and Bacteriology were fused to form the Section on Pathology and Physiology, with the plan to have a physiologist as chairman every third year.

I have spent too much time, perhaps, in tracing the history of this section, but I have tried to show how the minds of the profession have been drifting in their ideas of the relationship of these two fundamental branches of medicine. The physiologist has ever been the pioneer for the internist, and the histopathologist has ever been the mainstay of the surgeon. Without going into specific details I think I may safely say that the physiologist usually has been about a decade ahead of the remainder of the profession. But as his activities in the American Medical Association became closely associated with those of the pathologist, we find that he is thinking and talking more and more of pathologic physiology, of alteration of the functions of the various organs of the body when affected by disease, and of deviations from the normal produced by pathologic conditions. So within the last thirty years there has developed what is now recognized as a separate specialty in medicine, that of clinical pathology.

What is a clinical pathologist? To certain members of this section this query will have a familiar sound. It has been discussed and defined many times, particularly by the American Society of Clinical Pathologists. A clinical pathologist is a physician who devotes all or the major portion of his time to diagnosis of disease by laboratory methods. He is a histopathologist and microscopist. He must be a serologist, a bacteriologist and to some extent a parasitologist, a hematologist and somewhat of a chemist and physicist. In this field of varied interests he must always be up to date and must serve chiefly as a consultant in interpreting and evaluating laboratory data for his medical brethren.

Most clinical pathologists in America are devoting part of their time to histopathology. They are often surgical pathologists called on to make diagnoses by the use of frozen sections and to make biopsies generally. They will often also conduct necropsies, and hold clinicopathologic conferences. In connection with such work there may also develop an opportunity for research in histopathology. In most universities, the clinical pathologist and the field of clinical pathology may be somewhat subordinate to general pathology, although in hospitals and in small group practice this is not true, as the clinical pathologist is also the general pathologist.

To the physiologist and physiologic chemist the clinical pathologist owes a great debt, for it is his research of yesterday that so often provides the methods for the laboratory procedures of today. The newer methods for estimating chemical changes in the blood, developed by active physiologic chemists, constitute many diagnostic methods that are of daily use in the clinical laboratory. The same debt is owing to the closely related investigators in serology and in immunology. Without the ready application of these methods, developed in the last twenty years, clinical pathology would never have reached the place that it now claims to occupy. So it must ever be the duty of the clinical pathologist, I feel, to be alert to put to the practical test of experience those new methods and new theories that the physiologist develops, for often the latter has no real opportunity to put them to practical use.

In thus applying the physiologist's methods to the study of the patient, the clinical pathologist becomes a clinician. He may not, and should not, assume responsibility for the care of the patient, but as a diagnostician he should always feel a grave responsibility to the patient, for on his accurate observations depend the diagnosis of the disease and the plan of treatment, surgical or medical. His attitude toward his colleague should be that of a consultant. Although it may be sufficient merely to give a report of observations, the alert and conscientious clinical pathologist should be able to interpret those observations as applied to the particular case in hand. If his opinion is sound and his conclusions are accurate, he will command the respect of the surgeon or clinician who has sought his advice. Then, at times, he may be called on to extend his relationship to the patient by administering a form of treatment which has been developed in the laboratory and which is possibly best handled by the clinical pathologist, such as administration of vaccines and serums, intravenous injection of solutions, and possibly also performance of transfusions of blood.

As a research worker the clinical pathologist may not hope to compete with his brother who devotes his entire time to such alluring fields. However, his daily duties give him an opportunity always to carry on some investigation. He usually has animals and facilities at his disposal for some form of experimentation. The clinical material that he has at hand usually will provide him with an opportunity for more study than that which is merely necessary to make a diagnosis. In some one of the several fields of interest that I have mentioned, the observing clinical pathologist may often find, in his daily routine, something really worth the most careful study and recording in medical literature.

As I have mentioned, the clinical pathologist also has an opportunity to contribute to the knowledge of general medicine by trying new methods and properly evaluating with the clinician the data thus obtained. In this connection I should like to refer to an address of Arno B. Luckhardt, chairman of this section in 1923. He made "a plea for the concerted efforts of the clinician and the laboratory worker," and said: "The problems in clinical medicine awaiting a practical solution are numerous. In these problems the highly specialized laboratory man is not interested, chiefly because he has no knowledge of them. With a general medical background he would give these problems the attention now devoted to problems of a highly technical nature in his own specialty. Whereas some men seek knowledge for its own sake, others are urged to research because of the practical importance of the knowledge sought for, but in the last analysis, all knowledge is of practical importance, the only difference being that some knowledge is more immediately practical than other knowledge. The solution of more or less practical problems in no way interferes with the development of any science, but rather hastens its development." Dr. Luckhardt probably had in mind the relation of the physiologist to the clinician; nevertheless I feel that he suggested to the clinical pathologist a real opportunity.

Moreover, whether or not the modern clinical pathologist desires the responsibility, he usually finds that he must be an executive. As a director of a laboratory he must employ technicians, purchase supplies and apparatus, keep accurate records, and make charges for services rendered. He must be as much of a business man as a physician can be, and often many of the details of the hospital, institution, or group, will intimately dovetail with the actual business of running the clinical laboratories. In training his technicians he becomes a teacher, not often to be sure in a didactic way, but rather by example and by criticism and daily conference. He may even have the opportunity to do more. It is an acknowledged fact that there is a scarcity of clinical pathologists in the United States. Young men with a liking for laboratory work may take up this specialty if the opportunities can be made attractive. Three years' experience working under a clinical pathologist or in the closely allied fields is considered the minimal requirement for adequate training to fit one for an independent position in this field. Here, truly, the relationship between teacher and graduate student may become evident. The very future of this specialty depends on recognizing and assuming this duty.

Resentment toward a colleague whose manner toward the laboratory man may be irritating does not improve the situation in any way and need not be stressed. Modern medicine is now irrevocably dependent on laboratory methods for diagnosis, and the law of demand in relation to supply will inevitably work.

Some mention should be made of those teachers of the last twenty years who have deliberately espoused the cause of clinical pathology and who, by example and precept, have made the specialty what it is today. We all know and revere the names of Stitt, Todd, Emerson, Simon, Cummer and Webster and have turned to them and many others daily for information.

I realize that to many of you what I have tried to say seems trite. You are the clinical pathologists of today and know all of the problems as well as or better than I do. I might have dwelt more on the economic side of this specialty, but in describing the activities of the clinical pathologist as I see them, I cannot but feel that the outlook is bright. Diagnoses by laboratory methods are now accepted. Correlation of laboratory and clinical data must be made by a physician, not by a chemist, not by a technician. In assuming the rôle of the consulting physician on matters of laboratory diagnosis, the clinical pathologist will come into his own.

NEW PROBLEMS OF THE ORTHOPEDIC SURGEON *

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The practice of medicine is undergoing a definite change. There are many indications of this, such as the appointment of the various committees for the study of the cost of hospital care, the cost of medical education and other inquiries that are being made under the direction of the American Medical Association. In addition to this, there are many lay organizations that are interested in the prevention and care of the sick and disabled. The result of this activity up to the present time is quite evident in that no one can deny that there is now better supervision of all medical and surgical work and that a noticeable advancement has been made in the prevention of disease. Just what the further and ultimate effect is going to be one cannot say, but that it is important for the profession to take a vital interest in the movement so that the progress will be along the proper lines is self-evident; to stand aloof and cry out that we are drifting into state medicine with its attending disaster to the principles and precedents of our profession is not the proper way to meet the issue that we face. If we use our efforts to guide the movement along proper lines it will no doubt work out for the common good of all concerned.

Orthopedics, the branch of medicine that this section represents, is probably undergoing a greater change than any other branch of medicine. The greatest movement in the interest of the crippled child that has ever been known is sweeping over the whole country. It is interesting and important to note what the tendency of this movement is. Observations rather clearly indicate that the tendency is to take the work to the communities rather than to take the child to the centers where the work has been established. Many of the states in the central portion of the country are at work on plans that will establish clinics throughout the state both for the operative and for the follow-up care of these cases. This is, no doubt, the result of the success that has followed the establishment of hospitals in these various communities for the care and treatment of general conditions. If this plan is proper and is to be the one

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* Chairman's address, read before the Section on Orthopedic Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

ultimately worked out, it creates a definite responsibility in the teaching of orthopedics in the medical schools.

To meet this demand, medical students and interns will need to be taught more of the principles of orthopedics and that it is definitely a part of medicine and surgery and not a distinct specialty. It would also necessitate standardizing the ordinary procedures in this line of work and removing the mysterious atmosphere that at present hovers around this specialty. Many physicians are often embarrassed by being referred to as miracle workers when in reality there is nothing about the correction of deformities that is any different in principle from surgical work in general. The aims are exactly the same; namely, to overcome the effects of disease and disability and to restore the patient to usefulness.

That students can be taught to care for the ordinary congenital and acquired deformities is, to my mind, just as logical as the fact that they can be taught to care for the ordinary ailments that they are expected to care for in the general practice of medicine. It is true that they need supervision in a general way and that it will always be the function of the medical centers and of the medical organizations to furnish this supervision and to supply the institutions to care for the unusual cases that will always exist. Medicine and general surgery have only recently been established on the community basis, and it has worked out so successfully that my observations lead me to believe that the trend of orthopedics is toward a similar plan; to my mind it is possible to work it out in time quite satisfactorily.

The other phase of orthopedics has been toward the industrial side of medicine. This is a tremendously large field and one that is rapidly undergoing reorganization. Compensation laws and insurance organizations are assuming control with a tendency to direct this work. They are requiring more from the industrial surgeon than the surgeon has ever produced. They are demanding shorter hospitalization periods, a quicker return to duty and earlier adjustments of claims. This is also greatly to the advantage of the claimant. The best possible method of preventing compensationitis is prompt action by the physician in recommending a hearing before the compensation board. The insurance companies need the guidance of the medical profession but they are still casting about for the methods that bring the quickest results.

The orthopedic men have been the ones to whom they have turned for advice. At the present time they are looking to us to reorganize and supervise the care of cases of industrial injury. There is much that we must consider if we are to direct industrial surgery successfully. One of the important phases is that of medical ethics. Insurance companies know nothing about medical ethics and, in reality, care nothing about them. To allow our established principles of ethics to be broken down would mean ultimate disaster for us as well as for them. We must therefore labor with these organizations until they are willing to accept our established code; also, we must labor with ourselves so that we can see and are willing to accept the insurance company's point of view. We should also understand that compensation laws cannot possibly be framed to the end that justice can be secured for every individual, and also we should understand that the individual will be best served by the fair and just rating of all cases. Therefore, the work of supervising and placing this field of medicine on its proper basis is of vast proportions and I would like to urge that each member of this section renew his allegiance to this branch of orthopedic surgery that has literally been thrust on us to the end that we prove ourselves equal to the task of properly directing the organization of this branch of surgery to the satisfaction of all.

306 East Twelfth Street.

THE HEART IN PREGNANCY *

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What advice shall be given to the cardiac patient who contemplates marriage? If pregnancy ensues is it not likely to cause the mother's death or, if not that, to cut years off her length of life? It is my purpose in this article to discuss pregnancy in the cardiac patient in an attempt to answer these questions and to offer a brief statement of the therapeutic principles.

DIAGNOSIS

The first essential is an accurate diagnosis of the condition of the heart; it has been amply demonstrated that many of the patients whose hearts have been thought to be diseased in reality possess fully normal hearts. Gammeltoft[1] of Copenhagen has shown that during pregnancy the cardiac condition may often simulate organic disease although the latter is not actually present. He studied 239 perfectly healthy pregnant women and found that during the final two months of pregnancy 39, or 16.3 per cent, showed signs that suggested organic cardiac disease. These were: rapid pulse, extrasystoles, visible venous pulsation, and systolic and diastolic murmurs at the base of the heart and over the pulmonic and tricuspid valves. In no instance could these be detected four weeks after parturition. Gammeltoft writes: "I do not doubt that quite a number of cases of functional heart disturbances are included among the cases of heart disease which are treated in obstetric clinics everywhere. This in turn means that statistics will vary a good deal."

It may be well to give a definition of heart disease. In simple language this can be stated as some structural change that can be detected macroscopically or at least microscopically by the pathologist at postmortem examination. I am not concerned, for the purpose of this article, with the belief of some authors that there may be instances of cardiac disease in which the abnormality is due to physicochemical changes that are as yet undetectable by the present methods of examination.

There are certain guides or principles that should be more generally followed before deciding that organic heart disease is present:

The Rule of Age: The diagnosis of heart disease in patients under 40 years of age is rarely justifiable in the absence of one or more of the chief reliable signs; in the elderly the reverse is true. Most pregnant women are less than 40 years of age.

The chief reliable signs of organic heart disease are:[2]

1. Distinct overdistention of the veins of the neck.
2. A precordial thrill, if a definite "purr"; a slight vibration is insufficient.

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* *From Boston University School of Medicine, and the Evans Memorial.*

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

[1] Gammeltoft, S. A.: The Heart in Pregnancy, Surg. Gynec. Obst. **46**: 382 (March) 1928.

[2] Reid, W. D.: Cardinal Principles of Cardiac Diagnosis, Boston M. & S. J. **197**: *132 (July 28)* 1927.

3. An unmistakable pericardial friction rub.
4. A diastolic murmur.
5. An irregular rhythm, persisting after exercise, especially if the rate is or reaches 120 or higher.
6. Definite signs of enlargement of the heart.
7. Expansile pulsation of the liver.
8. Widespread arterial disease or a persistent blood pressure of 160 or above in a young person, of 180 or higher in the elderly.

It should be remembered that in pregnancy signs 1 and 6 must be used with caution. The increase in abdominal pressure during the later months of pregnancy causes distention of the cervical veins; this disappears promptly after delivery. Also, when the uterus is large its tendency is to cause a high position of the diaphragm which in turn produces a more transverse position of the heart. In this way the location of the cardiac impulse and borders of percussion dulness are displaced outward, and the unwary may believe that the heart is enlarged. The enlargement is apparent but not real; if the size of the heart is to be accurately determined, resort to roentgen mensuration should be made. And, furthermore, there are occasional instances in which the sign described under item 5, i. e., auricular fibrillation, occurs in an otherwise normal heart.[3] Gammeltoft [2] has been cited as having detected diastolic murmurs in some pregnant women whose hearts were normal. It is noted that he did not find these apparently functional diastolic murmurs at the apex. Therefore, the middiastolic murmur of mitral stenosis retains its reliability as a sign of that lesion. The occasional exceptions to the foregoing reliable signs have been discussed elsewhere.

Minimal Symptoms and Signs: A diagnosis of cardiac disease is indicated at times in spite of the lack of any of these reliable signs. This applies to angina pectoris, certain electrocardiograms, bacterial heart disease and, in elderly patients, a diminution in the tolerance for exercise. In young persons in the absence of one of four cardiac conditions—definite enlargement, aortic disease, mitral stenosis, or auricular fibrillation—a deficient exercise tolerance should rarely be attributed to the heart; tuberculosis or other infection is more likely. Pregnancy itself causes a lessening of the tolerance for exercise.

Practically all cardiac symptoms and signs not listed here, though often associated with organic disease of the heart, are so frequently present with the normal organ that they are not of themselves reliable evidence of cardiac disease.

TYPE OF HEART DISEASE

In patients in whom the results of examination justify the diagnosis of organic heart disease, rheumatic heart disease is the type nearly always present. In fact, other observers [4] have found that more than 90 per cent of the cases of significant heart disease in pregnancy are those of the rheumatic type; my experience agrees with this figure. Because of this fact the subject matter of this article will be limited to rheumatic heart disease, or, as it is less well termed, valvular disease of the heart.

STATISTICS ON RHEUMATIC HEART DISEASE

There are not available many statistics as to the age of death of patients with the rheumatic type of heart disease. In table 1 are given such as I have been able to find. The average age at death of the patients studied in these reports is 35.5 years.

For the purpose of obtaining data relating to the age at death of the patient affected by rheumatic heart disease and its relation to pregnancy, I have searched the postmortem records of the Boston City Hospital from 1916 through 1928, a period of twelve and a half years. Some of the pertinent data are presented in table 2.

TABLE 1.—*Mortality from Rheumatic Heart Disease*

Authors	Cases, Number	Males, Number	Females, Number	Age at Death, Years	Duration from First Attack of Rheumatic Fever to Death, Years	Age at Death	
						Males, Years	Females, Years,
Willius, F. A.: Am. Heart J. **3**: 139 (Dec.) 1927	160	80	80	39.5	14	41	38
Cohn, A. E.: Am. Heart J. **2**: 275 (Feb.) 1927	...	..	..	20-35* 35-45*	 15*		
Cabot, R. C.: Facts of the Heart, Philadelphia, 1926	107	45	62	30-39	..	60% before 40	40% before 40
Coombs, C. F.: Rheumatic Heart Disease, New York 1924	98	..	..	28.2			
Reid, W. D.	27	7	20	43	28†	38.6	43
Average................	..	..	..	35.5‡	..	40.8§	39.0§

* Computed from the literature.
† Average for 12 of the 27 cases.
‡ Cohn's figures were not used in obtaining this average age.
§ Computed from Willius and Reid only, so the average is not actually comparable with that of the entire group, as given in the fourth column.

TABLE 2.—*Sex and Marital State in Necropsy Cases*

	Cases, Number	Age at Death, Years	Average Size of Mitral Orifice, Cm.	Cause of Death	
				Cardiac, Number	Other Disease, Number
Entire group..............	27	43.2	5.9	13	14
Males......................	7	38.6	5.0	3	4
Females....................	20	44.8	6.1	10	10
Single..................	10	47.2	6.5	5	5
Married.................	10	42.4	5.8	5	5

The study was limited to instances of definite stenosis of the mitral valve. It was felt that statistics based on the presence of this lesion could not be questioned, as it appears to be generally accepted that mitral stenosis is caused solely by rheumatic heart disease; only cases proved post mortem were utilized in order to eliminate the possibility of errors in the clinical diagnosis and the rare occurrence of narrowing of the mitral valve by nonrheumatic lesions.

The possible criticism that the statistics may be affected by the noninclusion of mitral insufficiency and aortic lesions is answered by pointing out that other observers [5] have found that analysis of their cases in relation to the valvular lesions present showed that the particular valve lesion had little determining influence on the mortality rate.

There were found only twenty-seven cases of rheumatic mitral stenosis; nevertheless it is believed that the statistics obtained from this group offer information on the subject in hand, namely, the heart in pregnancy. The reader is cautioned against giving these figures unwarranted significance. Their number, as already stated, is small and they are limited to the most definite cases. The group is a representative one, rather than a complete group of the lesions of the rheumatic type of heart disease. It is also appreciated that they are drawn from but a single source, that of a large metropolitan hospital. I was not seeking information about rheumatic heart disease in general but the effect of pregnancy on such hearts. Subject to the foregoing, and doubtless other limitations, I consider the statistics to be of value.

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[3] Reid, W. D.: Auricular Fibrillation in an Apparently Normal Heart, Boston M. & S. J. **197**: 1213 (Dec. 29) 1927.

[4] Breed, W. B., and White, P. D.: Heart Disease in Pregnancy, Boston M. & S. J. **188**: 984 (June 21) 1923. Hamilton, B. E.: Ibid. **197**: 762 (Nov. 3) 1927.

[5] Pardee, H. E. B.: Pregnancy Complicating Heart Disease, Am. J. M. Sc. **164**: 847 (Dec.) 1922. Footnote 4, first reference.

The average age at death of these twenty-seven patients was 43.2 years, while that of the single women was 47.2 years and 42.4 years for those that were married. In but twelve of the group was it possible to determine the duration in years of the disease, when the latter was estimated from the initial attack of rheumatic fever or chorea. This is not surprising when one recalls that in approximately half the cases rheumatic heart disease is present in the absence of a history of an etiologic infection. The figures on duration are not of much significance as they are subject to too considerable error; one can, however, place more reliance on the age at death. The cause of death was the disease of the heart in but half of the entire group; on this point there was no significant difference in relation to sex or marital state.

The figures gleaned from the ten married women are of greatest interest. In one case there is no statement as regards the bearing of children; in a second, the clinical record mentions repeatedly that the patient was the mother of "a large family" but does not specifically state the number of offspring. The remaining eight women bore children, 46 in all, or 5.75 children per mother. There was but a single miscarriage. The latter occurred in a woman who had successfully borne five children but who aborted in her sixth pregnancy. The fetus was lost at five months during a febrile disease from which she died five months later and which was proved to be subacute bacterial heart disease; *Streptococcus viridans* was present in the blood cultures both in life and at the necropsy. This single miscarriage can probably be attributed to the terminal viridans infection rather than to the rheumatic heart disease.

It is reasonable to assume that if pregnancy was a potent cause of the premature death of women with heart disease some evidence of this effect would be shown in the records of patients in a large hospital such as the Boston City Hospital. My search, however, has disclosed no essential difference save an average age at death of 4.8 years less for the married women than for the single, but even then the former outlived the men with the same cardiac disease. When the data are analyzed in relation to the number of children and miscarriages, the figures appear even more favorable. I feel safe in concluding that as far as these statistics have value they support my clinical impression that women with rheumatic heart diseases die before their time, in fact during the child-bearing period, not because of marriage and pregnancy but on account of the natural evolution of this disease.

EFFECT OF PREGNANCY ON THE HEART

It has been shown[6] that the blood volume is increased in pregnancy. Barcroft[7] has discovered in addition that a contraction of the spleen occurs in pregnancy. The increase in the blood volume takes place at about the middle of gestation or at the same time as the observed contraction of the spleen. It is considered, therefore, that the increase in the volume of the blood is derived from that released from the large content in the spleen before it contracts.

One of these investigators[8] has shown that in pregnancy the volume output per minute of the heart is increased an average of 44 per cent and he concludes therefore that to accomplish this the work of the heart has increased to the same extent. However, the late Sir James Mackenzie[9] emphatically stated that there is no such thing as heart disease caused by pregnancy. He believed that pregnancy did not induce cardiac hypertrophy or any pathologic change in this organ.

There are certain facts in the physiology pertaining to the heart that cause one to question whether it is correct to infer, as I understand Haupt to do, that an increase in the output of the heart per minute indicates a corresponding percentage of rise in the work of this organ. As pregnancy advances the progressively enlarging uterus gradually distends the abdomen with increased intra-abdominal pressure, and thereby better return of the venous blood to the heart ensues. The effect of this is stated by a physiologist[10] as follows:

> By increasing the venous return the output per beat is increased proportionately. The greater *initial length* of the cardiac fibers at the beginning of systole results in more forcible contraction, so that greater amounts of blood are discharged at each beat ("Law of the Heart"—Starling). If the fibers are overstretched, then a more feeble contraction results, the output is diminished, and the heart does not empty itself effectively. The pressure in the heart rises very little during the diastolic filling, because the heart fibers elongate and adapt themselves to accommodate the blood which is entering.

According to Starling's law of the heart, just mentioned, within certain limits of augmented return of the venous blood the myocardium contracts to better advantage, and the output of the heart increases more than the actual work of the muscle. The physiology of the circulation is complex and this is not the place to attempt its further discussion.

It might be thought that the death of some of these patients within the first year or two after the birth of a child was due to an effect of the pregnancy in reactivating the rheumatic infection in the heart. The analogy of tuberculosis is cited. This analogy has, however, lost much weight with me since I have been informed that an analysis undertaken in Vienna[11] of 8,000 pregnancies disclosed that inactive tuberculosis rarely becomes worse through pregnancy: only 5 per cent of the patients showed lighting up of the tuberculous process and these cases were thought probably to have been active before the onset of pregnancy. Some patients have trouble in one pregnancy and little if any in a subsequent one.[12] Perhaps this difference is in part due to activity of the rheumatic infection during the particular pregnancy in which cardiac insufficiency was present.

It is true, nevertheless, that cardiac insufficiency appears in a considerable number of these patients during pregnancy and appropriate therapy is imperative.

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[6] Rountree, L. G., and Brown, G. E.: Studies in Blood Volume with Dye Method, Ann. Int. Med. **1**: 890 (May) 1928. The Spleen in Pregnancy, editorial, J. A. M. A. **94**: 638 (March 1) 1930. Gammeltoft (footnote 1) cites a series of observers who have demonstrated the blood flow through the heart in pregnancy.

[7] Barcroft, J.: Alterations in the Volume of the Normal Spleen and Their Significance, Am. J. M. Sc. **179**: 1 (Jan.) 1930.

[8] Haupt, W.: Physiology of Circulation in Pregnancy and Puerperium, Arch. f. Gynäk. **133**: 47 (Jan. 6) 1928.

[9] Mackenzie, James: Heart Disease and Pregnancy, Lancet **1**: 1230 (June 11) 1921.

[10] Wright, S.: Applied Physiology, Oxford University Press, 1926, p. 212.

[11] Davis, Max: Personal communication to the author; data to be published in the volume on gynecology written by Amreich and Pehan of Vienna.

[12] Nelius, A.: Heart Disease and Pregnancy, Monatsschr. f. Geburtsh. u. Gynäk. **57**: 127 (March) 1922.

The prognosis is often uncertain; it is not easy to predict in many cases what degree of disturbance, if any, may ensue.

PROGNOSIS AND TREATMENT

Medical literature contains numerous good articles on the treatment of the cardiac patient who is pregnant. I will therefore touch but briefly on this aspect of the subject. Table 3 gives the mortality in about 40,000 deliveries in three maternity hospitals.[13]

TABLE 3.—*Mortality in Three Hospitals, 1922-1927* *

	Boston	New York	Robinson	Totals
Deliveries	8,410	21,597	9,759	39,766
	109	197	96	402
	1.29%	0.91%	0.98%	0.98%
	21	15	3	39
deaths from all causes........	19.2%	7.6%	3.1%	9.7%

* The statistics are from the Boston Lying-In Hospital, the New York Lying-In Hospital, and the Robinson Memorial, Boston.

The prognosis and treatment of these patients is dependent on the presence or absence of cardiac insufficiency rather than on the structural change in the heart. The severity of the cardiac insufficiency, if present, is important. The time in pregnancy that congestive failure has occurred and the response to adequate therapy are significant factors. Severe cardiac insufficiency is usually preventable in patients under proper observation for, if therapy is not successful, operative intervention should be used before the patient is in a grave state.

In some patients the abrupt onset of a cardiac arrhythmia induces congestive failure of the circulation by forcing the heart to beat at an unduly rapid rate. The specific arrhythmias are paroxysmal tachycardia, auricular flutter and auricular fibrillation. In these cases it is clearly desirable to postpone emptying the uterus until the state of the circulation has improved through cardiac therapy. Skilful use of the well known methods of stimulation of the vagus nerve will often terminate paroxysmal tachycardia, and in those cases in which it fails the rapid administration of digitalis will reduce the ventricular rate to a more normal level. This may be accomplished within a few hours and permit the operative intervention under more favorable conditions, or, if the patient's condition warrants, it may be decided to maintain the cardiac improvement by further digitalis and let the pregnancy continue.

The principles applicable to the decision as to whether or not the pregnancy should be terminated are relatively simple. Evidence of activity of the infection of the heart or of insufficiency of that organ, if it does not promptly yield to treatment, is an indication for operative intervention. In the occasional case in which the heart disease is complicated by disease in other organs (nephritis or active tuberculosis), pregnancy should be terminated.

In the instances of acute pulmonary edema during labor the condition should be met by the hypodermic administration of morphine sulphate, ¼ grain (16 mg.), atropine sulphate, $\frac{1}{50}$ grain (1.3 mg.), and digitalis intravenously in adequate dosage. This therapy should be continued according to need. If labor ceases because of the effect of the morphine, so much the better. The patient's condition may improve sufficiently during the short respite to permit parturition to be resumed under more favorable conditions. This is similar to the abrupt onset of a cardiac arrhythmia, already mentioned, which may or may not be associated with the acute pulmonary edema.

No attempt to induce labor or empty the uterus should, of course, be made in a patient in whom cardiac insufficiency of severe degree is present. It is far safer to keep such patients quietly in bed and resort to medical therapy (morphine and cardiac drugs) than to subject them to the added strain of an operation. If such patients will not survive medical measures, it is unlikely that they will tolerate the shock attending an emptying of the uterus. The problem is not identical with that of the toxemias in which the contents of the uterus are believed to be an important factor in causing the toxemic state. Unless labor is already present, the seriously ill cardiac patient should not be disturbed until her condition has improved.

The method of operative intervention to be employed should be left to the obstetrician; the cardiologist may well be content with stating merely that the procedure attended by the least strain to the mother should be selected. It is obvious that the number of the pregnancy, the record of the patient in former deliveries, the position of the fetus and the relation of its size to that of the maternal pelvis are of importance in deciding on the method of interrupting the pregnancy. If the obstetrician has particular skill in a certain operative procedure, this fact may turn the choice to that particular method.

The services of a skilled anesthetist are more important than the choice of a particular anesthetic. In fact, the selection of the latter may then confidently be left to the anesthetist. A general anesthetic such as ether has no damaging effect on the heart.[14]

It will be noted that I have barely mentioned the details of the medical treatment of cardiac insufficiency in pregnant women. They do not differ essentially from those practiced in nonpregnant patients and consist, of course, mainly in the adequate use of digitalis and rest. Experience shows that rest in bed for more than a short time is not essential to patients in whom the symptoms of cardiac insufficiency are not severe and are promptly relieved by therapy.

The obstetrician must have a good knowledge of cardiology or seek the assistance of a heart specialist when one is available. The treatment of the cardiac patient who is pregnant, to be most successful, requires the cooperation of both cardiologist and obstetrician.

COMMENT

There is clearly a need for the gathering of statistics pertaining to the longevity of persons with rheumatic heart disease in relation to the marital state and number of offspring.

It has been found that the average mortality of cardiac disease in pregnancy ranges from 5 to 10 per cent,[13] whereas the average annual death rate from rheumatic heart disease for patients of both sexes aged 20 to 40 years is estimated[15] to be about 3.5 per cent. The difference, then, between the two, 1.5 to 6.5 per cent, gives a suggestion of the amount of increase in the mortality of cardiac patients due to pregnancy and parturition. In view of the gloomy opinion expressed by some writers it may be well to turn the figures about; one finds, then, that 90 per cent or more of women with heart disease survive pregnancy.

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[13] Reid, W. D.: The Prognosis of Heart Disease in Pregnancy, Am. J. Obst. & Gynec. **19**: 63 (Jan.) 1930.

[14] Marvin, H. M.: The Heart During Anesthesia and Operative Procedures, New England J. Med. **199**: 547 (Sept. 20) 1928.

[15] Cohn, A. E.: Heart Disease from the Point of View of the Public Health, Am. Heart J. **2**: 275 (Feb.) 1927; my calculation from figures found on p. 277.

If it is true that these women with organic heart disease are dying during the child-bearing age because of the natural evolution of rheumatic heart disease and not because of pregnancy, it seems reasonable that this fact should be given consideration when these patients seek advice with regard to marriage and pregnancy. It has been well said by Hay and Hunt that motherhood is woman's peculiar privilege and prerogative, a privilege which one has no right to refuse without adequate reason.

The status of the unmarried woman with heart disease is much closer than is usually taught, I believe, to that of the male cardiac patient who is contemplating marriage. The prospective mother has the problem of whether she can adequately care for her future children. There also is the possibility of the early death of the patient (male or female), causing the leaving of dependent children. The amount of damage which the heart has already suffered, and the financial, social and intellectual status of the patient, have much importance in the decision reached. This is obviously a radically different approach to the subject of marriage in patients with organic heart disease than that which holds childbearing prohibited in all cardiac patients.

SUMMARY

The first essential is an accurate diagnosis of the condition of the heart. Organic disease of the heart is absent in many pregnant women the integrity of whose hearts has been questioned.

If cardiac disease is present, it is nearly always some form of rheumatic heart disease.

The average age at death of patients with rheumatic heart disease is 35.5 years.

Statistics show that the average age at death was 42.4 years for married women with heart disease and 47.2 years for those that were unmarried. The number of children of the married women in the group analyzed averaged 5.75.

The mortality from cardiac disease in pregnancy is but slightly greater than that of cardiac patients of similar age in the general population. Probably 90 per cent or more of cardiac patients survive pregnancy and parturition.

CONCLUSIONS

Married women with rheumatic heart disease die before their time because of the natural evolution of this disease rather than because of child-bearing.

This fact should be given consideration when advising women with heart disease regarding marriage and pregnancy.

510 Commonwealth Avenue.

Fear is a Mental Deformity.—The behavior problems of David—hitting children, destroying their projects, and acting silly—are not unknown among two-year-old children in the "best families." There the usual treatment is a sharp command to "stop that" or, perhaps, physical punishment. Both of these methods are unpsychological because each maims the personality. Neither one develops the child. So far as either has any effect, the restraining influence is fear; and fear is a mental deformity. The behavior of many mothers would seem to indicate that they think their chief function is to thwart or forbid, and to enforce their prohibitions with punishment which is thought suitable to the tender years of the child. This is the easiest way to discipline. It is also the worst.—Swift, E. J.: The Psychology of Childhood, New York, D. Appleton & Co., 1930.

CARDIOVASCULAR DISTURBANCES IN THE OBSTETRIC PATIENT

WITH ESPECIAL REFERENCE TO ELECTROCARDIOGRAPHIC OBSERVATIONS *

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The relative infrequency of the problems of heart disease in the individual practitioner's obstetric experience has led to a somewhat passive attitude on the part of too many physicians toward the subject. It must be admitted that most of the larger series of gravidocardiac patients reported have come from institutions into which for the most part only complicated cases are admitted. Those working in such institutions are perhaps prone to acquire an exaggerated idea of the importance of the subject. Nevertheless, on the facts gleaned from these extensive studies are formulated the rules to be relied on for guidance in the rational scientific management of the isolated case.

Pregnancy in a patient with heart disease has long been recognized as a seriously complicated situation. Jardine [1] was impressed by the disastrous results accompanying the induction of labor in the gravidocardiac patient. Williamson [2] reported similar conclusions as to the exceedingly great risk in the danger of collapse and sudden death of pregnant women with heart disease after delivery following the introduction of bougies. Mackenzie,[3] Pardee,[4] Wilson and Herrmann,[5] Robinson,[6] Oliver,[7] Hay and Hunt,[8] Jensen,[9] Zinsstag,[10] von Jaschke,[11] and especially Lennie [12] in England, Sachs [13] in Germany and Hamilton and Kellogg [14] in this country, have reported extensive and important clinical studies.

CRITERIA

In any study such as this, it is desirable to state clearly our conception of what the general term "heart disease" embraces. We have considered as patients with heart disease only those who present the reliable criteria or physical signs [15] as evidence that the heart muscle has suffered impairment of its reserve through the effect of infection, allergy, anoxemia, strain, exhaustion, undernutrition or developmental disturbances. The state of the heart muscle is such that sooner or later the symptoms and signs of myocardial insufficiency, namely, congestive or anginal heart failure, will appear. This "decompensation" is the result of such precipitating factors as undue exertion, intercurrent toxemia, lack of oxygen or the inevitable vascular and circulatory changes and complications of advancing cardiac hypertrophy and age, and the inevitable embarrassment of the coronary circulation.

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* From the Heart Station and Maternity Service of Charity Hospital and the Departments of Medicine and Obstetrics, Tulane University of Louisiana School of Medicine.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

[1] Jardine, R.: J. Obst. & Gynec. Brit. Emp. **1:** 399, 1901.

[2] Williamson, H.: J. Obst. & Gynec. Brit. Emp. **10:** *200, 1910.*

[3] Mackenzie, James: Heart Disease in Pregnancy, London, 1921.

[4] Pardee, H. E. B.: Experiences in Management of Pregnancy Complicated by Heart Disease, Am. J. Obst. & Gynec. **17:** 255 (Feb.) 1929.

[5] Wilson, Frank; and Herrmann, George: Heart Disease and Pregnancy, J. Michigan State Med. Soc. **12:** 148, 1923.

[6] Robinson, A. L.: Effect of Parturition on the Heart, Lancet **1:** *170 (Jan. 22) 1927.*

[7] Oliver, Thomas: Heart Disease and Pregnancy, Brit. M. J. **1:** *709 (April 16) 1927.*

[8] Hay, John; and Hunt, E.: A Record of Fifty Consecutive Cases of Pregnancy and Parturition in Patients with Crippled Hearts, Lancet **1:** 271 (Feb. 11) 1928.

[9] Jensen, F. G.: Investigations on the Influence of Pregnancy and Parturition upon Organic Cardiac Disease, Acta. obst. et gynec. Scandinav. **6:** 239, 1927.

[10] Zinsstag, G.: Pregnancy and Mitral Stenosis, Monatschr. f. Geburtsh. u. Gynäk. **75:** 498 (Feb.) 1927.

[11] Von Jaschke, R. T.: Pregnancy and Mitral Stenosis, Zentralbl. f. Gynak. **51:** 1350 (May 28) 1927.

[12] Lennie, R. A.: Pregnancy Complicated by Cardiac Disease, J. Obst. & Gynec. Brit. Emp. **34:** *331, 1927.*

[13] Sachs, E.: Management of Labor in the Patients with Cardiac Disease, Deutsche med. Wchnschr. **54:** 45 (Jan. 13) 1928.

[14] Hamilton, B. L., and Kellogg, F. S.: Cardiac Disease in Pregnancy: Prognosis; Medical and Obstetric Handling, J. A. M. A. **91:** *1942* (Dec. 22) 1928.

[15] Besides diastolic mitral and aortic thrills and murmurs, evidences of rheumatic or syphilitic heart disease, there are these other individually pathognomonic signs of heart disease, as engorged neck veins, cardiac enlargement, heart block, auricular *fibrillation* or *flutter* or *pulsus alternans*, aortic dilatation or aneurysm, widespread general arteriosclerosis, chronic hypertension or evidences of chronic nephritis *or chronic* hyperthyroidism, angina pectoris and none other. The presence of any one of these diagnosticates *the presence* of heart disease *and the* absence of every one of them may be taken as proof that the *patient is not suffering* from heart disease.

MATERIAL

We have been engaged in accumulating these data in the heart station and in the prenatal clinic and maternity service of the Charity Hospital of New Orleans during the past three years, 1927, 1928 and 1929. Within this period there have been admitted a total of 24 cases (1.38 per cent) of heart disease among 1,746 pregnant white women, of which 16 patients (0.916 per cent) with serious cardiac valvular disease with and without disturbances of mechanism complicating the pregnancy were found. At the same time there were also 8 cases (0.458 per cent) with toxic or other myocardial damage and congestive failure. Hypertension, toxic nephritis or eclamptic states were present in 47 cases. The mortality figures were as follows: heart disease, 8; eclampsia, 10; other toxemias, 3; collapse, 4; placenta praevia, 5; premature separation of placenta, 1; postpartum hemorrhage, 2; septicemia, 4; pneumonia, 2; full term abdominal pregnancy and parturition, 1; miscellaneous conditions, 8; total, 48.

The series, though not an extensive one, has been exhaustively studied electrocardiographically as well as clinically, and has yielded information on some of the less stressed but nevertheless important points in the problem of heart disease and pregnancy. We have been especially interested in the disturbances of cardiac mechanism often found in patients with more or less serious chronic cardiac valvular disease. We wish, furthermore, to call attention to significant types of cardiac failure in patients with nonvalvular heart disease and serious partum complications.. We have considered as gravidocardiac only those patients who presented one or more of the accepted physical evidences of heart muscle damage.

GROUPS OF GRAVIDOCARDIAC PATIENTS

We have divided our cases into five groups, in each of which there are several patients. The patients with signs of complicating disturbances of cardiac mechanism corroborated by electrocardiographic observations are collected and presented in the first group as a means of calling especial attention to this type of case. There are, as usual, along with these disturbances of mechanism also the evidences of precipitating or concomitant chronic rheumatic valvular defects. In all the other cases the electrocardiographic changes when reflecting the effects of valvular changes only were not commented on.

The groups and their make-ups are as follows:

Group 1.—*Gravid patients with disturbances of cardiac mechanism, electrocardiographically recorded, as added complications to the more or less severe rheumatic heart disease.*

In this group we have had two patients with complete bundle branch block. One of these, a multipara, aged 33, also had mitral stenosis and insufficiency, aortic regurgitation and slight stenosis as well as anginal and congestive heart failure. She and her seventh baby died during the spontaneous delivery. The second, a primipara, aged 37, with complete bundle branch block, had an acute rheumatic pancarditis that was discovered in the second month and subsided under treatment, leaving valvular damage and intermittent bundle branch block. During one of the periods of intermittence the patient was successfully delivered of a living baby by cesarean section, and during another an operation for sterilization was accomplished. These most unusual and interesting types of serious cardiac mechanism disturbances have not, so far as we know, been described hitherto in the pregnant woman.

Bundle branch block, as we have pointed out, is a considerably more serious complication and increases the risk in obstetric and also in surgical cases more than does auriculoventricular block. As evidence of the seriousness of intraventricular conduction defects stands witness the fact that our first patient, a multipara who was allowed to go into labor, died suddenly in the beginning of the second stage. We have records of two patients with similar disturbances who died suddenly at the beginning of the surgical procedures. The second patient with bundle branch block was fortunately found by repeated electrocardiographic studies to have short periods of normal conduction after complete rest for a few days. She was followed from the second month to the eighth month at regular intervals of a few days and then daily until it was found after a considerable rest that she was out of block. A cesarean section was performed in one period of normal conduction and in another interval sterilization was accomplished. Bundle branch block returned, but the patient and the baby survived and have been unexpectedly well.

A third patient in this group had had complete auriculoventricular heart block since the age of 20 and had six successful deliveries without any complications. Her valvular damage had been slight with only evidence of mitral insufficiency. This instance of another significant type of unusual disturbance of cardiac mechanism, complete auriculoventricular heart block of long standing with little or no other cardiac damage, seemingly had no disturbing effect. The latter patient had not had a heart rate above 40 since her slow pulse was noted at the age of 19, but no trouble had been experienced in her six parturitions.

A fourth patient presented auricular fibrillation as well as high grade mitral stenosis and congestive heart failure. She and her baby both died during premature labor in the eighth month of her sixth pregnancy. The fifth patient, with paroxysmal auricular tachycardia and rheumatic mitral insufficiency, delivered her ninth baby without any difficulty. Other cases of this disturbance have been likewise handled without difficulty. The sixth patient, with premature contractions, rheumatic mitral insufficiency and stenosis and congestive heart failure, was rested and digitalized and uneventfully delivered her sixth living child.

Auricular fibrillation is a relatively rare obstetric but serious complication under any circumstances, always indicating advanced concomitant myocardial damage. Less serious types of cardiac mechanism disturbance such as paroxysmal tachycardia and premature contractions often occur in gravid patients with normal hearts and are of little consequence if correctly diagnosed and interpreted.

Group 2.—*Gravid patients with chronic valvular heart disease without disturbances of rhythm.*

In this group practically all the patients had high grade mitral stenosis and insufficiency. In two patients there was congestive heart failure in the middle months of the seventh and eighth pregnancies. One was successfully treated and tided along until the seventh month, when she was delivered of a living baby by cesarean section. The other disregarded advice and orders, did not respond to her second digitalization and rest,and succumbed to pulmonary edema following the cesarean delivery of a living baby under ether anesthesia. Four other mitral stenosis patients with mild grades of congestive failure were all successfully treated and delivered spontaneously without any mishap. One patient with mitral stenosis and pulmonary cirrhosis died undelivered. Two patients with aortic regurgitation, with and without mitral disease, had little difficulty after a short period of digitalization and rest in bed preceding confinement.

Two patients with congenitally defective intraventricular septum and slight conus stenosis with and without patent ductus arteriosus and cyanosis, both without congestive failure, have been observed to go through pregnancy and labor without any difficulty.

Group 3.—*Gravid patients presenting besides chronic valvular defects also acute and subacute postpartum exacerbations of previous rheumatic infection and cardiac damage.*

One of the patients in this group began to have acute inflammatory manifestations in the fourth month of her first pregnancy but was tided along on salicylates and digitalis until the seventh month, when she delivered a premature baby that survived. This was her first pregnancy, and sterilization was advised because of the evidences of chronic rheumatic, mitral and aortic and myocardial disease. The other had an exacerbation of her rheumatic disease beginning in the later months of her first pregnancy and continuing for three months post partum. She recovered under salicylate therapy. Because of the chronic rheumatic mitral disease, she was advised against further pregnancies. The second bundle branch block case of group 1 would also come under this heading.

Group 4.—*Gravid patients with myocardial insufficiency before and during labor and often presenting extensive pulmonary thrombosis as a result of chronic congestion of the lungs and further acute parturient slowing of the movement of the blood mass.*

In this group there were four patients recorded, in one of whom myocardial insufficiency of unknown origin appeared in the seventh month of her first pregnancy. Acute severe and persistent hemoptysis was accompanied by signs of consolidation of the lung bases. A postpartum pulmonary thrombosis was demonstrated at autopsy two weeks after the delivery of a dead baby. Another patient with a similar symptom complex with similar signs slowly recovered but had much difficulty because of myocardial and renal damage. A third case of the same type was discovered at autopsy to have pulmonary vascular damage which was erroneously considered extensive embolism. Still another, with a similar clinical picture, died, but permission for autopsy was refused. In this group might be included several patients with evidences of some renal damage that seemingly predominated the picture before delivery, except for some evidences of cardiac damage such as dilatation and an unusually conspicuous gallop rhythm. After delivery these patients usually persistently had rather high grade myocardial insufficiency. This group merges with the last group in which at times are placed cases that cannot be clearly differentiated.

Group 5.—*Gravid patients with acute toxic degenerative cardiorenal states, subacute and chronic nephritis, hypertensive, syphilitic aortitis or arteriosclerotic heart disease with ultimate circulatory failure.*

No instances of chronic hyperthyroid heart disease and pregnancy were encountered in this study.

Four examples of various combinations of these toxic degenerative disturbances in pregnant women have been selected for this report. In only one of these was a living baby delivered. One of the patients died; two became chronic cardiac invalids. The fourth one with paroxysmal attacks of acute cardiac failure survived. One patient with syphilitic aortitis and angina pectoris delivered a premature macerated syphilitic fetus and recovered.

The toxic cardiorenal group of gravidocardiac patients should probably be made up of various cases that present acute eclampsia, hypertension, chronic nephritis and arteriosclerotic heart disease that may or may not be accompanied by edema and engorged organs. A toxic renal state is quite often preliminary to heart muscle damage. Sometimes these patients present the signs of renal insufficiency at delivery only to change to the signs of myocardial insufficiency post partum.

COMMENT

In summarizing the groups it is apparent that the electrocardiographic studies have yielded important information that has not been previously emphasized in the obstetric literature. Auriculoventricular and bundle branch block and other disturbances of mechanism are thus found to occur in the pregnant woman and to affect profoundly the prognosis and require specific treatment in many cases. Normal pregnancy, as we [5] and others have shown, produces no significant changes in the electrocardiogram. The presence of defective auriculoventricular and intraventricular conduction or bundle branch block in the gravid patient apparently warrants clinical respect. Indisputable evidence of this defect is unfortunately revealed only by an electrocardiographic study.

Acute active endocarditis, most probably of the rheumatic type, has been present in two of our patients. Pulmonary thrombosis from stasis and pulmonary congestion, the result of myocardial insufficiency, is another serious type of heart failure that has been previously little if at all mentioned, and is here noted as a complication of pregnancy. We have had four such cases, of which two came to autopsy and two were diagnosed clinically only. One of the patients who survived presented definite evidence of having suffered from a pulmonary vascular accident a thrombosis as proved by hemoptysis and lung signs.

Chronic cardiac valvular disease in pregnant women makes up a large part of the series that we have studied. Fourteen of our cases presented definite evidences of some one of the valvular disturbances, the presence of which indicated concomitant myocardial damage usually with, rarely without, congestive failure.

The types of heart disease encountered in pregnant women are no different from those found in the general population, and the incidence is about the same. Heart disease in pregnant women may be in order, toxic, nephritic, hypertensive, rarely arteriosclerotic in type, rheumatic, syphilitic and goitrous. Disturbances of the cardiac mechanism may occur during pregnancy as well as at any other time. The significance of each of the various types is about the same as it is under ordinary conditions, but even the relatively numerous abnormalities may complicate matters. Only a few are of serious moment, but each must be independently evaluated, taking into account the other cardiac changes. Some arrhythmias, such as premature contractions, even in paroxysms, are of little significance but may embarrass the cardiac function when it is on a strain, as during labor. Auriculoventricular block, auricular flutter, fibrillation and alteration are serious, and especially so is bundle branch block.

The majority of gravidocardiac patients with serious heart disease—only about 25 per cent of all, but about 75 per cent of those that die—present a rheumatic mitral stenosis as the chief abnormality. Three fourths of the cardiac fatalities in pregnancy therefore are the result directly or indirectly of mitral stenosis, fibrous obstructive narrowing of the mitral valve. Therefore, the mechanical effects of the lesion must be a directly contributing factor. Criteria for the diagnosis of mitral stenosis should be reviewed since this lesion is of such importance. These signs have been described in detail elsewhere.[16] The lesion is perhaps the most often undiagnosed of all valve lesions. The characteristic sign is an apical diastolic, low rumbling sound rather than the higher pitched, blowing adventitious sounds usually thought of as murmurs. The rheumatic heart, as a general thing, is no more common in pregnant women than in the population at large.

From 1.5 to 2 per cent of pregnant women have cardiovascular disease. The number of these that have later complications is rather small. Only about 1 or 2 per cent have any trouble whatever during their pregnancy or even during the later great effort of labor. Yet 25 per cent of maternal deaths are due to the presence of a complicating heart disease. The physical strain of the muscular contraction necessary in labor is, of course, the work factor that must be evaluated, and the ability of the heart to carry this load should be determined as nearly as possible.

The woman heavy with child is prone to have some shortness of breath, palpitation, and even some edema from the purely mechanical effects of the gravid uterus in pressing upward the diaphragm, restricting respiratory movements, diminishing the vital capacity, and interfering with the venous return from the extremities. The increasing transverse position of the heart may cause slight shifts in the electrical axis. For these reasons it is often a difficult matter to determine, in the absence of the diagnostic murmurs, whether a woman has merely an exaggeration of effort symptoms or a neurosis or true heart disease.

Pregnancy increases the work of the heart considerably; the extra flow of blood required by a growing fetus in the enlarging uterus puts an indeterminable extra burden on even the normal heart and a strain of serious moment on every damaged heart. The increase in body weight, the reduced diaphragmatic movability, the displacement and rotation of the heart add to the embarrassment of the circulation. Consequently, it is not uncommon to have then the first evidence of cardiac trouble appearing during pregnancy. Under these conditions of strain any slight overtaxing of the heart may be an irreparable insult, precipitating a serious and often fatal congestive failure. The presence of any intercurrent infectious disease, even a mild sore throat or upper respiratory process, must be respected as serious and the patient put to bed to avoid further complications.

SOME GENERAL RULES CONCERNING GRAVIDOCARDIAC PATIENTS

It is hard to formulate any definite hard and fast rules concerning prognosis and measures to be undertaken in all cases. The great majority of patients with organic heart disease, especially those whose activities have not been restricted, can be subjected to a moderately hard labor or to a surgical operation with but slight if any increased risk. A fact not generally realized is that practically every patient who has been able to be up and about without respiratory embarrassment or substernal distress or congestion and edema will go through even a prolonged normal parturition or will tolerate almost any anesthetic regardless of the anatomic valvular lesion in the heart. That is, if the patient has been doing her daily routine without unusual symptoms, discomfort, dyspnea, puffiness, pitting edema or dropsy, she may be expected to do well under a considerable physical strain. Unfortunately, dependence must be placed almost entirely on the patient's story for the information as to the so-called cardiac reserve.

Innumerable tests of cardiac efficiency and exercise tolerance tests have been devised, but none have proved entirely satisfactory thus far. A discussion of these tests have been published elsewhere and is available.[16] The estimation of vital capacity and the cardiorespiratory test seem to be most promising. Pardee's [4] studies of dumb-bell exercise tolerance tests, standards and grouping for pregnant women are of the most importance and constitute a most practical contribution on this important subject. Pardee groups his gravidocardiac patients according to a functional classification based on the reaction to physical strain.

In this grouping class I embraces patients such as those described in the preceding paragraphs. Pregnant women in this class should swing, from between the legs to above the head, a 10 pound, or if the patient is poorly developed physically, a 5 pound dumb-bell from twenty to twenty-five times. This effort should call forth nothing more than a moderate amount of dyspnea and tachycardia, which subside in a minute or two.

Class II A patients show an excessive reaction to the dumb-bell test with marked dyspnea and tachycardia. This group embraces those who can perform the usual normal physical activities but who have discomfort in doing these. Such persons, however, have an increase in shortness of breath after climbing stairs, lifting heavy articles or walking up grades.

In Class II B there are the patients in whom the reaction to the dumb-bell exercise is so excessive that the exercise cannot be carried out on account of palpitation or dyspnea. Those patients who are unable to execute the more difficult features of ordinary physical activity, such as climbing two flights of stairs, or walking at an ordinary rate for a half mile, on account of fatigue, shortness of breath, or palpitation, are grouped under this class.

Class III includes those patients who cannot perform the simplest physical activity, as walking 200 or 300 feet or climbing one flight of stairs without resting or doing any housework without fatigue, shortness of breath or palpitation. A patient in class III cannot perform the dumb-bell exercise more than five or six times.

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[16] Herrmann, George: Chronic Cardiac Valvular Disease, Oxford Medicine 2, pt. 2, chap. xiii, p. 492 (1) to 492 (70).

In a series of more than a hundred cases, deaths from heart failure during labor occurred only in patients of classes II B and III. Thus, gravid patients of classes I and II A were considered and actually proved to be able to withstand the strain of labor. The duration, character, severity and effects of the extra load placed on the heart in labor are unpredictable and infinitely greater than would ever be imposed by any ordinary surgical procedure under a reasonably smooth anesthetic of even two or three hours' duration. It is therefore certainly safe to regard the patients of classes I and II as good surgical risks, those of class II B as fair and those of class III as poor.

DEFINITE DANGER SIGNALS

It is only in the presence of such lesions as (*a*) bundle branch block or (*b*) incontrollable auricular fibrillation, especially with hyperthyroidism, (*c*) syphilitic aortitis without or with (*d*) anginal failure, and (*e*) high grade congestive heart failure that general anesthesia, especially ether, is contraindicated. Especially is this so when there is any edema of the lungs.

If a general anesthetic is found to be necessary, nitrous oxide or, better still, ethylene is to be preferred as far as the circulation is concerned. Spinal or local anesthesia, even for cesarean section, is by far the safest method to use in gravidocardiac patients.

It is most desirable to reestablish circulatory equilibrium by the use of digitalization, coronary vasodilation, and rest in bed will promptly get most patients into a desirable condition for operation.

In the case of surgical conditions in patients with disease, it is often a matter of choice, the question being as to whether the patient is going to gain more by taking the risk, or whether it might not be better not to take the risk. In the obstetric cases, however, there is no choice; something must be done. The patients that present themselves late in pregnancy with labor imminent or even under way, and in cardiac failure, bring out that point forcibly. In pregnancy with mitral stenosis and congestive heart failure, a truly critical emergency exists. These patients must immediately be given careful attention; they must be put to bed in a hospital under careful medical supervision and kept there until complete restoration of compensation is accomplished before labor is induced or operation is undertaken.

The pelvic measurements and size of the fetus, length and difficulty of previous labors, the degree of completeness of the reestablished circulatory function and the character of the cardiac damage determine the procedure to be pursued in any given case. It is desirable always to make as short and easy as possible the second stage if labor is instituted or allowed to proceed. This can be accomplished by the use of instrumental aids in delivery. The use of a tight abdominal binder immediately after delivery is a prophylactic measure against postpartum collapse or shock.

In all patients who have had serious congestive failure, the chances of survival of the child in an anoxemic uterus are poor, and delivery should be contemplated as soon as a viable child can be expected; that is, at the end of seven and a half months' gestation. By far the safest and simplest method of delivery is cesarean section under local anesthesia. Sterilization can be accomplished at the same time with little difficulty. Most gravidocardiac patients, even those with mitral stenosis and serious congestive failure, will respond to carefully supervised medical care and can be subjected to operation with assurance of satisfactory results if every detail of preparation and of after-care is conscientiously attended to. The medical management determines in a large measure the degree of success of the whole undertaking.

SUMMARY AND CONCLUSIONS

Twenty-four cases of heart disease in pregnant women are grouped in the order of seriousness and the various complications commented upon. Disturbances in the mechanism of the heart beat in pregnant women are especially stressed.

The importance of electrocardiographic studies, repeatedly done, in gravidocardiac patients is emphasized.

Bundle branch block, its serious significance and the hopeful possibility of the temporary transient nature of the condition are demonstrated.

Auriculoventricular block, fibrillation, and the less serious abnormalities and their effects in the cardiac function are commented on and illustrated. The state of the heart muscle is of the utmost significance.

The alleviation of congestive heart failure before permitting labor or surgical delivery to proceed is found to be paramount for success. Ether was found to predispose to fatal pulmonary edema in patients with the lung congestion of mitral stenosis. Of general anesthetics, ethylene is the choice as far as the cardiac condition is concerned, but local anesthesia is by far the safest to use.

Acute rheumatic endocarditis occurring during pregnancy responded to treatment and subsided about as it does in nonpregnant individuals.

Extensive and usually fatal pulmonary thrombosis is shown to occur relatively frequently in instances of serious idiopathic myocardial degenerative changes.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DR. REID AND DRS. HERRMANN AND KING

Dr. Harold E. B. Pardee, New York: I want to emphasize the point which Dr. Reid attempted to bring out: that by statistical studies it should be possible to determine the effect of pregnancy on the longevity of these patients. The idea that they are hard to deal with is well founded, for the reason that so many of them develop cardiac failure and come under observation in the large hospitals for the first time. By proper prepartum care it should be possible to prevent serious cardiac failure and this is the feature of pregnancy complicated by heart disease that I particularly want to emphasize. Two things should be determined in every patient. First, it must be determined whether or not she has heart disease. A patient with heart disease may still be a good candidate for pregnancy, but she must be watched during pregnancy, the degree of cardiac reserve determined, and precautions taken to make sure that failure is not setting in. During labor particular care must be taken to recognize the onset of failure. The best procedure is to count the pulse and respiration every half hour. The pulse should not go over 105 or 110; the respiration should not go over 28 or 30. If they reach those figures it is a sign that cardiac failure has set in, and labor must be ended promptly. If labor is not far enough advanced, the patient should be given a large dose of morphine and allowed to rest. A great deal of harm is done by operative procedures during severe cardiac failure, particularly intra-uterine procedures through the vagina. Cesarean section seems to be well borne, but even this should not be done if the patient shows marked cardiac failure, if it is possible to wait for the results of medical treatment. If a better state of cardiac function can be achieved, the mortality will be very low. Whether a woman can go through a pregnancy or not often depends on sociological rather than on pathologic factors. The same woman, if everything is done for her, might be able to go through without developing cardiac failure, whereas if she must take care of her children and her house she might not be able to do so. So sociology enters into the prognosis and also into the question of sterilization. The lesion should not be considered the sole determining factor. The cases of Drs. Herrmann and King show that serious cardiac failures may occur and yet even after this delivery may be successful.

Dr. Frederick H. Falls, Chicago: The main factor to know about in pregnancy complicated by cardiac disease is, What can the heart do? This should also serve as the criterion as to whether or not the patient should be allowed to become pregnant. If one finds the functional capacity of the heart good throughout pregnancy, even in the more serious types of cardiac diseases, pregnancy may continue to a satisfactory conclusion. I agree with practically everything presented in both papers in connection with the management of the cardiac case. Cardiac patients are apt to have premature labor and this may be relatively painless. Not infrequently, women with cardiac lesions, especially in the presence of decompensation, will have strong uterine contractions without knowing it or without letting the attendants know. Precipitate premature delivery may occur as a result. There is another point to be emphasized in connection with the handling of these cardiac patients: There may be a latent period after delivery or two or three days before a sudden collapse and death. I have seen this unfortunate experience two or three times. The patient seems to be entirely out of danger and suddenly there is a circulatory collapse and death. These patients should be observed and treated just as carefully post partum as ante partum. When acute dilatation of the heart occurs, I have used oxygen inhalation before and after the delivery with considerable beneficial effect. When cesarean section is indicated because of decompensated heart lesions, I do the classic operation with the patient in the modified Fowler's position. The operation is done under local anesthesia or a combination or local anesthesia with a little ethylene. I feel that this gas is safer than ether. Group 4 of Drs. Herrmann and King's cases, the toxic type of cardiac disease, I feel contains probably some cases that present a latent hyperthyroidism. I have seen patients with serious myocarditis secondary to hyperthyroidism. These patients improved markedly after pregnancy and labor were over. I feel that the cooperation of the internist should be sought before the follow-up period. When possible, the internist should be consulted early in pregnancy.

Dr. Hyman J. Epstein, New York: I am not sure that, whenever a cardiologist gives a bad prognosis in any case, the prognosis is bad. Often the cardiologist has advised against pregnancy and the young mother did not take the advice and delivered absolutely normally and without any complications. On the other hand, I have had cases that I thought were absolutely safe, and the electrocardiogram corroborated the observations of the cardiologist and yet such patients died, not during labor but immediately after labor. Of course, there is an explanation. Pregnancy is a pathologic process severely affecting previously damaged organs. And just as the kidney can become damaged when least expected, is it not reasonable to assume that a previously damaged myocardium may succumb to pregnancy? Usually young women can go through a pregnancy quite well. But an older one who has had several pregnancies is more apt to die. Not enough stress has been laid on the effect of pregnancy on a damaged myocardium. If the cardiologists would look on the heart just as much as on a damaged kidney, these patients could be advised before they become pregnant whether they should or should not take the risk. When they are pregnant, there is no better way than conservative expectant treatment, the cardiac condition being treated and the pregnancy being left to nature. Cesarean section is not more helpful than normal delivery. The fact of the matter is that it is not labor that kills them but the pregnancy. The term labor, in the sense of work, is a misnomer; especially when one sees how easily the cardiac patients go through the process of delivery.

Dr. W. D. Reid, Boston: What Dr. Epstein said about prognosis would be nice if we felt we could do it. I do not think it is possible for any man, whether he is a cardiologist or not, to determine prognosis so accurately. But a considerable estimate can be made. What I wanted to stress is that there is some evidence that 5 or 10 per cent of women with definite heart disease die during pregnancy. Those are average figures. I would like to see a bit more optimism and say that in from 90 to 95 per cent of these proved cases the woman survives. It is because I was trained to believe so differently that I have had to delete some of my own pessimism. The problem can be very obscure. It seems to me that much of it is not so obscure but is simpler and clearer; but, of course, when the percentage of nonrheumatic hearts is smaller, it requires more and more knowledge of internal medicine and cardiology to pick them out. It seems, though, that the physician in charge of the pregnant cardiac patient, be he general physician or obstetrician, must know a good deal about internal medicine and heart disease, and when possible he should avail himself of one who knows those fields better; otherwise he has to do it alone. The best way, as in many other things, is probably through cooperation.

Dr. G. R. Herrmann, New Orleans: I have little more to add. The points commented on by Dr. Pardee and Dr. Falls were well taken. I would be willing to agree with them in toto, and even with some of Dr. Epstein's radical comments. Our errors are many from the point of view of exactness in internal medicine, but we do have criteria to follow that are fairly reliable in I might say 75 per cent of the cases. That is about as high an average as can be expected. The ordinary criterion that can be followed with considerable safety is that if the woman is up and about in her pregnancy and able to carry along her ordinary activities of life without much increase in dyspnea other than that from the mechanical factors of pregnancy, she will be able to go through her labor without much difficulty. In other words, if she has a pretty good cardiac reserve she is a good risk regardless of her valvular defects. This can be further estimated by the simple dumb-bell test that Dr. Pardee has brought forth and confirm one's opinion as to her myocardial efficiency. Prognosis is merely a guess, in most cases especially, in the prospective bride or primiparous patient, and here again the sociological point which Dr. Pardee brought out is of much importance. If the woman is going to be in such an economic state that she can have help throughout her life and all the cares of the children will not be on her shoulders, she may expect to live out the ordinary span, as Dr. Reid said, without much added distress. If, however, she is of the great middle class and has a mitral stenosis with already some symptoms of failure, her prospects are mighty poor for a long and full married life without distress, cardiac invalidism and early death.

When Parents Are Related.—When parents are closely related, the gene defects of the two are likely to lie in the same pairs. For they have gotten part of their genes from the same ancestors, and some of these common genes are likely to have been defective. In unrelated parents, on the other hand, the gene defects have arisen independently, in different ancestors, and are therefore not likely to lie in the same pairs. This is the reason why unrelated parents, and particularly those belonging to different racial groups, or coming from different parts of the country, frequently give superior offspring. All this has its obverse side. By the production of new combinations in which the genes of the parents supplement each other, superior individuals are produced. By the taking apart of these combinations and the making of new ones in which the genes are not supplementary, inferior individuals are produced. The method of recombinations may work to produce defectives as well as normals, fools or knaves as well as geniuses. . . . When there is mating between two normal individuals each of whom have certain defective genes in the same pairs, to some of their offspring each will contribute a defective gene of the same pair. The result is the production of defective individuals.—Jennings, H. S.: The Biological Basis of Human Nature.

TREATMENT OF NONTUBERCULOUS SUPPURATIVE PNEUMONITIS, ABSCESS AND BRONCHIECTASIS [*]

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There exist such widespread pessimism and confusion with regard to the treatment of bronchiectasis, abscess and allied nontuberculous suppurative conditions of the lung that we believe it should be of value to present what we consider the most useful therapeutic procedure in view of our own clinical experience and the opinions of others.

The term "suppurative pneumonitis" has been widely adopted to include the various nontuberculous cavernous and noncavernous pulmonary lesions and their combinations in the same patient. While the term is accurate and in the interest of simplicity, it gives no satisfactory conception of the many different forms in which this disease presents itself, each of which demands highly individualized consideration and flexibility with respect to treatment.

Until relatively recently, accurate diagnosis of the exact character of the lesions of suppurative pneumonitis and the factors that determine their onset and progression or regression have been little understood, and effective treatment has therefore often been a matter of chance. Indicative physical signs are often surprisingly fewer than the extent of the lesions would seem to promise, and they are not rarely misleading, as may be roentgenograms of perfect quality. Iodized oil[1] pneumograms (fig. 1) and bronchoscopy, together with a better appreciation of the etiologic factors and of the tremendous value of the patient's medical history, are largely responsible for increasing accuracy of diagnosis and for the development of therapeutic measures and their increasing effectiveness.

We feel strongly that treatment of the early or noncavernous stage of pulmonary suppuration is a problem that is chiefly concerned with local rest and the patient's general resistance and is, therefore, almost always the concern of the internist. Appropriate nonsurgical treatment in this phase of the disease frequently will result in cure. If it does not, and the patient enters into the next phase of the disease when extension of the pneumonitis has ceased and when cavitation is well established and natural bronchial drainage may be inadequate, the problem often centers on mechanical factors and demands some type of surgery for its successful solution. At this time surgery is conservative, not radical, therapy in that it tends to prevent further destruction of pulmonary tissue with the associated dangers of hemorrhage, extension of the suppurative pneumonitic involvement, cerebral abscess and the permanent damage to kidneys, heart and vessels that sometimes complicates prolonged suppuration. We believe that persistence in nonsurgical measures beyond the optimal time for surgical intervention not rarely is chiefly, although indirectly, responsible for the fatal outcome that may follow a too late operation that is performed out of pity in the hope that a single chance of recovery is better than none at all. Internists often mistakenly tend to attribute these bad results to surgery rather than to their own delay in recommending surgery during the period when its opportunity to cure was at its best.

Briefly, there is an early stage of suppurative pneumonitis when medical treatment is best and often cures. If it fails to produce more than slight improvement, the patient enters a stage of the disease when surgery may offer incomparably the best chance of cure. This period is succeeded by a terminal stage in which the chance of cure by any means has been practically lost and in which operation may be performed only with the understanding that the risk is great and the chance of cure slight.

EARLY STAGE OF SUPPURATIVE PNEUMONITIS

The lesions of the earliest stage of suppurative pneumonitis are usually a purulent infiltration of the alveoli and interstitial tissue of the lung with an associated infection of the bronchioles and smaller bronchi. As these lesions age, a varying amount of new connective tissue may form and contribute an element of fibroid pneumonitis. The causes of the lesions are many and have an obvious bearing on prophylaxis and treatment. Chief among the causes are the following: 1. Aspiration of infected material, with the consequent inflammatory reaction, may more or less completely occlude the bronchi and cause stasis-infection of the lung distal to the occlusion if the obstruction is not soon overcome by action of the cilia, coughing, deep breathing or bronchoscopic aspiration. The most commonly aspirated material comes from infected mouths or sinuses. Such aspiration may occur during sleep but most frequently during operations on the nose, tonsils, mouth and upper part of the abdomen or during general narcosis for operation on any part of the body. Pus may reach and infect the lung through a bronchopleural fistula or from an empyema or subphrenic abscess, or food may spill into the tracheobronchial tree because of pharyngo-esophageal diverticulum or esophageal obstruction by cancer or benign stricture or because of an esophageobronchial fistula. 2. Aspiration of any type of foreign body may infect the lung. 3. Prolonged bronchial obstruction by intrabronchial or extrabronchial neoplasms, aneurysms, strictures, foreign bodies and mucous plugs such as are believed to be responsible for postoperative atelectasis may cause suppurative pneumonitis through stasis of trapped secretions. 4. Incomplete resolution of pneumonia may be the cause. 5. Bacteremia may be responsible for emboli that establish infected pulmonary infarcts, or sterile infarcts may become infected by organisms normally resident in the lung. 6. Pulmonary infection occasionally occurs from extension of infection through the lymphatics from neighboring foci. 7. Wounds of the lung, especially when a foreign body remains, may cause a suppurative pneumonitis.

Indications for treatment are clearly implied by some of the etiologic factors just mentioned, as bronchoscopic or surgical removal of foreign bodies, drainage of an empyema, treatment of sinus disease, infected gums and alveoli.

Removal of secretions that lie within the bronchi and, through stasis, tend to maintain and increase infection within the lung, is of great importance. Coughing that raises these secretions is of the utmost value; only such coughing as is "dry" or excessive should be checked by opiates. In the very early stages of bronchial occlusion by secretions, deep breathing that is voluntary or, better, stimulated by a few minutes' inhalation through an anesthetic mask of 5 per cent carbon dioxide in 95 per cent oxygen every fifteen or thirty minutes or every one, two or four hours (according to the need for and effectiveness of this treatment) and followed by voluntary coughing usually will succeed in evacuating the secretions. Postural drainage by placing the patient on one side or the other, or with the upper part of the body more dependent than the lower, will frequently cause evacuation of secretions when other methods have failed. The most effective method of postural drainage for most patients who are not too ill and whose secretions lie in the lower half of the lung is placing the patient across the bed with his head and shoulders close to the floor (fig. 2). When these measures fail, one or more bronchoscopic aspirations may be rewarded by an excellent result.

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[*] From the Department of Surgery (Division of Thoracic Surgery), University of Michigan Medical School and Hospital.

[*] Owing to lack of space, two illustrations have been omitted. The complete article appears in the Transactions of the Section and in the authors' reprints.

[*] Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

[1] Various methods of introducing the oil are discussed by Pritchard, Stuart; Whyte, Bruce; and Gordon, J. K. M.: Radiology 8: 104 (Feb.) 1927.

Patients in the early stages of suppurative pneumonitis, including those who may be afebrile, should be required to remain at absolute rest in bed until several weeks after all sputum and other important symptoms of the disease have disappeared and until the physical signs and roentgen evidence of the pulmonary infiltration have largely disappeared. This has been emphasized by Stuart Pritchard.[2] Insistence on this is probably vital in combating recrudescences of the disease and development of the grave conditions of abscess or bronchiectasis.

Further measures of value in the management of these patients by the so-called sanatorium regimen are the stimulation of fresh air, a high caloric diet of not distasteful bulk, great fluid intake and, when necessary, transfusions of blood. The general plan of treatment just described, with suitable variations, should be followed in all stages of suppurative pneumonitis, including abscess and bronchiectasis. When spirochetes are present in the sputum in the acute and subacute stages of cavernous or noncavernous suppurative pneumonitis, several intravenous courses of neoarsphenamine may prove of great value. In the chronic stage the lesser chance of a favorable result should be weighed against the greater chance of damage to kidneys and liver.

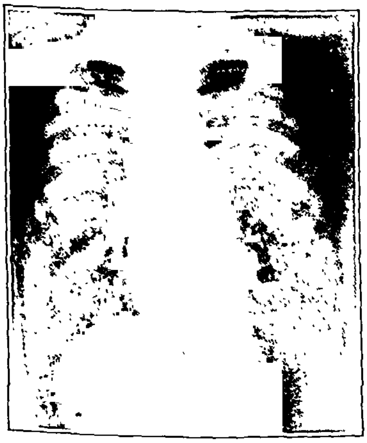

Fig. 3.—Arrows indicate area of chronic suppurative pneumonitis into which iodized oil has not penetrated. Sputum, 75 cc.; temperature, 101 F.; no foreign body by bronchoscopy. Temporary interruption of phrenic nerve was followed by gradual disappearance of lesion and symptoms.

If these various measures fail to cause a sufficiently rapid improvement in the condition, we believe that a temporary interruption of the phrenic nerve on the diseased side is definitely indicated (fig. 3). The resulting paralysis and rise of the hemidiaphragm relax and rest the inflamed lung and are important factors contributing toward cure. From four to six months later the diaphragm will begin to function again.

ABSCESS[3]

In spite of faithful treatment, an area of suppurative infiltration may rapidly or slowly be excavated by necrosis to become an abscess or multiple abscesses, or by the action of putrefactive organisms to become gangrenous. Even now, if less than from six to ten weeks has elapsed since the onset of the disease, continuation of the same treatment will bring about a cure in perhaps 30 per cent of cases of abscess. Drainage of an abscess cavity at this early stage is dangerous because, through direct trauma to the inflamed lung combined with the disturbance in the function of coughing and expectorating that follows wide opening of the abscess and of the peripheral bronchi to atmospheric pressure, the suppurative pneumonitis may be caused to spread. In those patients in whom emptying of the abscess through the bronchi is unsatisfactory in spite of postural drainage, bronchoscopic aspirations should be given a fair but not too prolonged a trial. Although the bronchoscopist rarely is able to enter the abscess cavity with the aspirator, he does aspirate the secretions from the draining bronchi; this manipulation is followed by much coughing, which probably tends to empty the abscess itself and, at any rate, often seems responsible for cure. We feel that therapeutic intrabronchial instillations of iodized oil have not sufficiently proved their value in either abscess or bronchiectasis. We have had no experience with Castex, Heidenreich and Repetto's[4] intrabronchial neoarsphenamine.

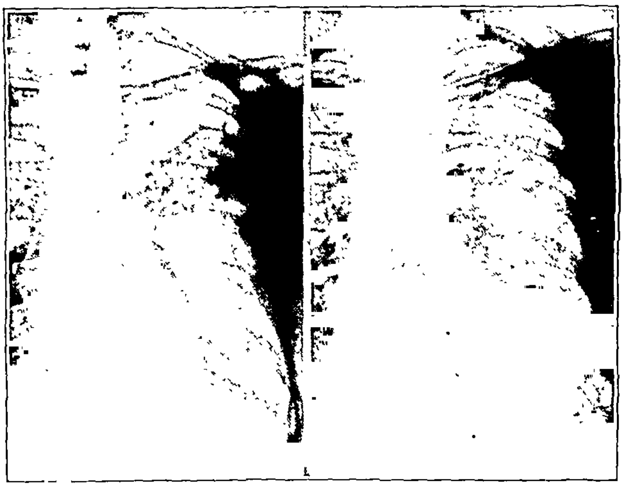

Fig. 4.—Left, suppurative pneumonitis with large irregular abscess eleven weeks after extraction of abscessed teeth; 75 cc. of foul sputum; loss of 25 pounds (11.3 Kg.). Right, disappearance of lesions and symptoms five months after temporary interruption of phrenic nerve; six weeks after operation lesions and symptoms were greatly improved.

If the abscess still persists, a temporary phrenic nerve interruption should be performed. We have seen most satisfying results to follow it in the prechronic stages (fig. 4), as well as only temporary improvement or, occasionally, no improvement at all; but we have never seen harm from it. This operation has served us better than any other measure in the control of all degrees of hemoptysis in abscess, as well as in bronchiectasis.

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[2] Pritchard, Stuart: Nat. Tuberc. A. Tr. **23**: 222, 1927.

[3] Miller, J. A.: New York State J. Med. **27**: 43 (Jan. 15) 1927. Pool, Eugene; and Garlock, J. H.: Ann. Surg. **90**: 213 (Aug.) 1929. Lockwood, A. L.: Surg. Gynec. Obst. **35**: 492 (Oct.) 1922. Edwards, A. T: Brit. J. Surg. **17**: 102 (July) 1929. Sergent, E.; Baumgartner, A., and Kourilsky, R: Bull de l'Acad. de méd., Paris **101**: 298 (Feb. 26) 1929.

[4] Castex, M. R.; Heidenreich, A., and Repetto, R. L.: Bull Acad. de med. **95**: 131 (Jan. 5) 1926.

A few cases of abscess, perhaps complicated by dangerous hemoptysis, that persist may be treated by artificial pneumothorax and the results are occasionally astonishingly good. We agree with Landau and Held[5] that pneumothorax, if used at all, should be limited to the early stages of abscesses and preferably those in the upper part of the lung where adhesions seem to form later than over abscesses in the lower lung. We further believe that pneumothorax should not be used for those abscesses that dwell in the peripheral portion of the lung, because here adhesions usually form very early and either prevent an adequate collapse of the involved portion of the lung by the pneumothorax or in being stretched may tear the infected lung and be responsible for a highly dangerous form of empyema. For this reason every pneumothorax should be induced with great caution, not more than 300 cc. of air being used for each filling until the fluoroscope and roentgenograms show that no adhesions exist in the neighborhood of the infected portion of the lung. Also, the peripheral type of abscess does less well with pneumothorax than does the hilar type because the necessary bronchial drainage is usually less free.

It should be recognized that any extensive pneumothorax that is unsuccessful may create a condition of great danger that the surgeon must face if drainage of the abscess should later prove necessary. The reason is that expansion of that part of the lung which is to be entered for drainage, and its firm adhesion to the thoracic wall, must be obtained before drainage is undertaken in order to prevent spilling of the pus from the abscess into the pneumothorax, which would cause a highly dangerous empyema. We advise against the use of artificial pneumothorax in abscess except under unusual circumstances.

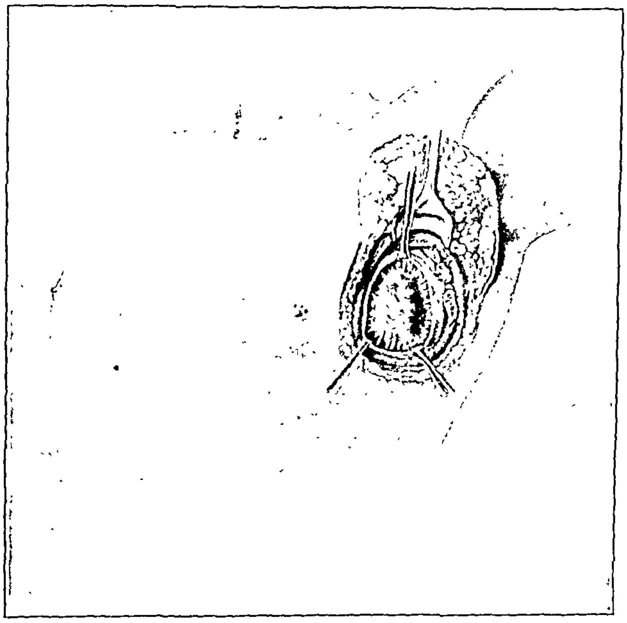

Fig. 5.—Axillary approach for drainage of upper lobe abscess: After a disk of parietal pleura was removed, the lung was found apparently adherent to the parietal pleura, but when the edges of the pleura were lifted several nonadherent places were discovered inferiorly that required packing for several days before the abscess could be safely opened without causing an empyema.

The lung and its contained abscess cavity may be relaxed or compressed locally by the operation of extrapleural pneumolysis. Sauerbruch[6] and Mittledorpf[7] are enthusiastic about this operation and use paraffin to fill the space created between the parietal pleura and ribs. F. P. Miller[8] has devised a useful pneumatic bag as a filling. Roux-Berger[9] reported three successes and two failures after extrapleural pneumolysis and considers the operation best for multiple abscesses. We have employed it only once in nontuberculous cavitation, using the pectoral muscles as a filling, with complete success in a chronic upper lobe abscess with excellent bronchial drainage. Sauerbruch states that if the operation does not close a cavity it will cause the formation of pleural adhesions and make future surgical drainage safer. Pneumolysis may prove valuable in severe hemoptysis.

A considerable number of abscesses will remain open and more or less poorly drained by the bronchi in spite of the best of medical treatment combined with bronchoscopic aspirations and interruption of the phrenic nerve and perhaps also with pneumothorax or pneumolysis. In general, if this is so six, eight or ten weeks (according to the circumstances) after the onset of the disease, and if the patient is not clearly showing signs of genuine improvement, surgical drainage of the abscess must not be delayed, because surgery offers little hope in the later stages of the disease. Sauerbruch[6] is of the opinion that drainage should not be postponed more than eight weeks after the onset of a metapneumonic abscess and that it should be used earlier for putrefactive suppuration or gangrene.

The technic of the operation will not be described here, but we will mention several aspects of the subject that we consider important:

1. Local anesthesia, or *no anesthesia* at all during cauterization of the insensitive lung, is superior to inhalation narcosis, which we believe increases the risk of causing extension of the pneumonitis.
2. The axillary is preferable to the anterior approach in most abscesses of the upper lobe; the posterior or posterolateral is the obvious approach to the lower lobe.
3. Removal of ribs wide of the limits of the abscess is preferable to restricted resections in that it affords a safe field of exposure for the operation and later aids in closure of the abscess and operative defect by permitting sinking in of the decostalized thoracic wall.
4. One of the greatest technical dangers of the operation, and one that must be avoided, is infection of the pleurae when the visceral and parietal pleurae are not completely and firmly adherent in the field of operation. Even if exposure of the external surface of the parietal pleura reveals it as opaque and even if the lung cannot be seen moving with respiration beneath it, we excise a disk of parietal pleura five or more centimeters in diameter before entering the lung with either a needle or a cautery. Further, before opening the lung, we lift the entire remaining cut edge of parietal pleura in order to see whether or not it and the visceral pleura are solidly adherent and serving as a complete barrier between (*a*) the pus that will flow against it after opening of the abscess and (*b*) the pleural cavity that may

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[5] Landau, A., and Held, J.: Ann. de méd. **25:** 441 (May) 1929.

[6] Sauerbruch, F.: Die Chirurgie der Brustorgane, ed. 3, Berlin, Julius Springer, 1928, pp. 811-905.

[7] Mittledorpf, K.: Deutsche Ztschr. f. Chir. **212:** 17, 1928.

[8] Miller, F. P.: Personal communication to the authors, Feb. 15, 1930.

[9] Roux-Berger, J.-L.: Bull. et mém. Soc. de chir. de Paris **47:** 268, 1921.

be unobliterated by adhesions beyond that barrier. Frequently we have seen only one or two tiny defects in this barrier of pleural adhesions that warned against opening the abscess until gauze packing for several days had caused new adhesions to close these openings (fig. 5). If exposure of the parietal pleura should reveal it as thin and not adherent to the lung it must, of course, not be opened at all until several days of gauze packing against it have caused firm adhesions through which the abscess may be safely drained at a second stage of the operation. Sewing the lung to the parietal pleura is dangerous because organisms may pass through the needle tracks from the lung into the pleural cavity.

5. We are opposed to the use of a rubber tube to drain an abscess. Even though soft, it may, by pressure necrosis, erode the already ulcerated wall of a blood vessel and cause a dangerous hemorrhage. We prefer to cauterize a wide opening to the abscess—wider than the abscess itself, unless it be a huge one—so that the abscess may be packed with medicated gauze that is moist or treated with petrolatum every one or two days until the cavity has filled in from its very bottom.

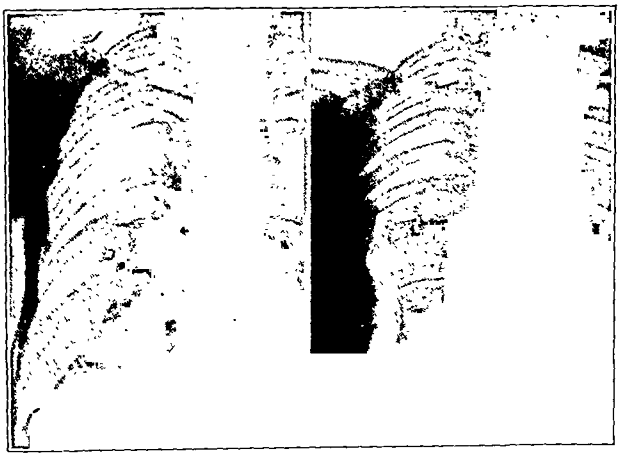

Fig. 6.—Left, abscess filled with air and pus seven weeks after partial gastrectomy; arrows indicate limits of abscess as determined the next day at open operation. Right, clear area lateral to costal stumps due to operative defect; arrow indicates position of a separate abscess, 9 by 4 cm., containing pus but no air, suspected when sputum did not disappear after drainage of other abscess and drained nine days after first operation.

6. The abscess should be kept packed snugly with moist medicated gauze or gauze on which petrolatum has been spread, so as to occlude the open bronchi. If this is not done, or when a tube is used for drainage, coughing tends to be ineffective in raising secretions from the lung, because a part of the force of the cough is dissipated through the open bronchi.[10] No attempt should be made to close a residual bronchocutaneous fistula until all sputum and all purulent discharge from the wound have ceased; this cannot be expected if a second inadequately drained abscess or a bronchiectasis is associated with the originally drained abscess. Otherwise most small fistulas will close spontaneously or may be aided by occasional cauterization of the mouth of the fistula with a stick of silver nitrate. If a patient with a large fistula wishes to avoid such inconveniences as never taking a tub bath and always wearing a small dressing, the bronchial fistula may be closed by mobilizing its end for about 1 cm., excising the scar at its mouth, closing the open bronchus by suture, and covering it with a flap of neighboring extracostal muscle, pedicled at the edge of the defect in the lung and thoracic wall, and finally mobilizing and closing the skin. Properly performed, this operation results in a large proportion of primary closures. Lebsche[11] has described an operative method of closing multiple bronchial fistulas.

Extrapleural paravertebral thoracoplasty is not indicated in any but the chronic stage of abscess; here its best results are obtained in abscesses with thin compressible walls or in small single or multiple abscesses, preferably those with which there is much intrapulmonary fibrosis. Persistence of sputum or an undue amount of discharge from the wound several weeks after drainage of an abscess probably indicates that there is a second abscess (or possibly an associated bronchiectasis) that requires drainage, even though it is not evident roentgenologically as a cavity with a fluid level (fig. 6).

Many cases of abscess that have not been drained at the proper time, and some cases that have been so drained, proceed slowly or rapidly to extension of the suppurative infiltration within the originally involved lobe and to other lobes. Cavitation is likely to follow and as a result there are a number of cavities of various sizes that either intercommunicate or are isolated from one another. Patients with such abscesses are usually in poor general condition and are not good operative risks.

Certain very extensive multiple abscesses cannot be well drained in the ordinary sense. For them, provided they are confined to one lobe, some type of lobectomy should be considered, because only complete eradication of the diseased tissue can cure them.

BRONCHIECTASIS[12]

It is not clearly understood why some cases of noncavernous suppurative pneumonitis that do not heal progress to abscess formation and why others progress to bronchiectasis. One obvious factor is that location of the principal lesions in the parenchyma determines abscess formation and in the bronchial walls bronchiectasis. David Smith[13] believes that the degenerating action of Vincent's spirochetes on the bronchial walls is responsible for their dilatation in much the same way that the spirochetes of syphilis are responsible for aneurysm of the aorta. It seems likely that, when fibroid pneumonitis is associated with degeneration of the bronchial walls, contraction of the fibrous tissue within the lung tends to dilate the bronchi by traction on their walls. This most frequently occurs after incomplete resolution of a pneumonia and in chronic empyema. Sauerbruch[6] is of the opinion that many cases of bronchiectasis are of congenital origin.

If, as we believe, a large proportion of cases of bronchiectasis develop more or less slowly from the initial lesions of simple suppurative pneumonitis, it is of great importance that every effort be made to cure these initial lesions before they become transformed into bronchiectases. We have discussed under "Early Stage of Suppurative Pneumonitis" the prophylactic and therapeutic measures that we consider best.

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[10] Sergent, Baumgartner and Kourilsky (footnote 3).

[11] Lebsche, cited by Sauerbruch (footnote 6).

[12] Lilienthal, Howard: Thoracic Surgery, Philadelphia, W. B. Saunders Company 2:82-218, 1925. Robinson, Samuel: Surg. Gynec. Obst. 24:194 (Feb.) 1917. Davies, H. M.: Surgery of the Lung and Pleura, London, Oxford University Press, 1930, pp. 169-187.

[13] Smith, David: Relation of Vincent's Angina to Fusospirochetal Disease of the Lungs, J. A. M. A. 94:23 (Jan. 4) 1930.

Therapeutic procedure for an established bronchiectasis varies greatly according to the following conditions: 1. Whether the lesions are limited to one or more lobes, as determined by staged iodized oil bronchography of all lobes of both lungs. 2. The amount and foulness of the sputum and whether or not there are hemoptyses. 3. The general condition and age of the patient, his capacity for work and his mental attitude toward his disease. 4. The frequency of fresh attacks of bronchopneumonia and whether the disease has a tendency to be progressive or remain quiescent.

Bronchography occasionally reveals an extensive bronchiectasis in a patient who has no sputum—the bronchiectasis sicca of Bezançon. This condition, which implies little or no infection in the bronchial walls, is in our experience usually encountered in an upper lobe in which drainage is downward toward the hilus, although we have also seen it in the lower lobe. It is commonly associated with a fibroid lung and traction displacement of the mediastinal organs. In these cases the patients should be especially careful to avoid "catching cold" that might permanently establish infection in the bronchi. We believe that permanent interruption of the phrenic nerve, phrenicectomy, is indicated to help to satisfy the contraction of the fibrous tissue within the lung, which it does through the resulting rise of the paralyzed hemidiaphragm.

In all cases of bronchiectasis there is a special indication to treat an infected mouth and sinuses and to search with the bronchoscope for an intrabronchial foreign body that may not be visible, roentgenologically. Chevalier Jackson[14] states that 98 per cent of his cases of suppurative pneumonitis caused by a metallic foreign body cleared up completely after removal of the foreign body even when the symptoms had existed for years, but that a lesser percentage became cured when the foreign body was vegetal. In our experience, disappearance of sputum in the chronic cases has occurred much less often than it did in Jackson's experience. Obstruction of the bronchus by cancer or by benign tumor should be ruled out, as should an empyema with bronchopleural fistula.

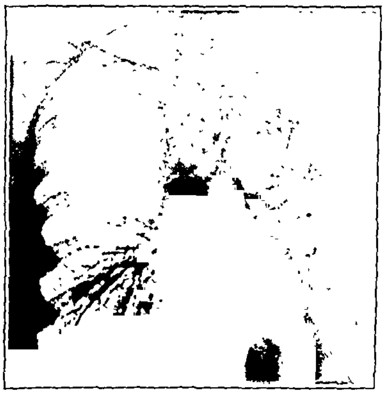

Fig. 7.—Saccular bronchiectases from apex to base of left lower lobe after sixteen years of profuse, foul and occasionally bloody expectoration. Two months before treatment the patient had a 500 cc. hemoptysis. Phrenicectomy and faithful postural drainage reduced 250 cc. of foul sputum to 20 cc. of odorless, bloodless sputum in seven months. The patient gained 12 pounds (5.4 Kg.).

We have had no experience with vaccines. Sergent[15] writes that he has seen no good from their use. With a picture of the pathologic anatomy of the lesions of bronchiectasis in mind it becomes apparent that cough mixtures can be of no real value, with the possible exception that such drugs as creosote may decrease the odor of the sputum. Blood transfusions should be used if the patient is very anemic and particularly as preparation for a major operation.

Occasionally bronchiectasis is associated with a large pulmonary abscess, a "bronchiectatic abscess," that may demand drainage as any other abscess would. Such drainage is likely to be followed by a bronchocutaneous fistula that will not close because of persistence of infection behind it. The multiple small abscesses which are, in fact, the bronchiectases themselves should not be drained in the ordinary way because such drainage is ineffective. Extensive drainage by staged cautery lobectomy will be considered later.

Bilateral bronchiectasis, or that involving both the upper and the lower lobes on one side, or unilobar bronchiectasis in a patient in poor general condition should not be treated radically. The mild general measures previously described may prove useful, and residence in an equable dry climate may improve sinusitis and lessen the incidence of attacks of bronchitis and bronchopneumonia which tend to increase the bronchiectases; also the sputum may be reduced in amount. Most important of all in the palliative treatment is the persistent use of postural drainage every two, three or four hours (according to the rapidity of production of sputum) during the waking hours and, if indicated, one or more times during the sleeping hours. By keeping the dilated bronchi relatively free from their stagnant secretions, infection in their walls tends to subside, the amount of sputum to be reduced, the odor and hemoptyses to lessen, and the patient's weight and general condition to improve. If postural drainage is ineffective in draining the purulent collections, weekly, or oftener, bronchoscopic aspirations should be tried. They often greatly relieve the patient but can scarcely be expected to bring about a cure.

When the disease is confined to one lower lobe, as it often is, and when the patient is in good general condition, more active measures may be employed. We believe that phrenicectomy should be the first to be tried (fig. 7). It often reduces the quantity and odor of the sputum and otherwise improves the patient. Sometimes it has no effect and a few times we have seen an increase in sputum but without apparent harm. In occasional early cases it alone may cure.

Artificial pneumothorax may cure an early but rarely a late case. Considerable improvement is occasionally obtained during maintenance of the pneumothorax, but this improvement is often partly or completely lost when the pneumothorax is abandoned and the lung expands. Considerable improvement during maintenance of the pneumothorax may, however, serve as an indication for an extensive extrapleural thoracoplasty, in the expectation of making the improvement permanent. We are disinclined to use pneumothorax except, perhaps, after phrenicectomy in the early stage of bronchiectasis, as permanently satisfactory results are not frequent and there is some danger of a complicating empyema.

Extensive staged extrapleural thoracoplasty has its principal value in (1) the rather rare type of bronchiectasis that is limited to the smaller or peripheral bronchi that are compressible because of their incomplete cartilaginous framework and (2) bronchiectases that are accompanied by great traction-displacement of the mediastinal organs, a condition that occasionally occurs as a complication of chronic empyema.

In the usual central type of bronchiectasis, in which the lesions occupy the larger bronchi, our experience agrees with Denk's[16] and Sauerbruch's[6] that thoracoplasty is often insufficiently effective and that the operative risk from aspiration pneumonia and cardiocirculatory failure is much greater than in tuberculosis. Hedblom,[17] Harrington,[18] and J. E. H. Roberts,[19] have, however, reported good results from thoracoplasty.

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[14] Jackson, Chevalier: Surg. Gynec. Obst. **42**: 305 (March) 1926.

[15] Sergent, Emile: Internat. Clin. **2**: 20 (June) 1926.

[16] Denk, W.: Deutsche Ztschr. f. Chir. **221**: 186, 1929.

If, after all the measures we have been discussing and that may be proper for a given patient have been tried, the patient is in reasonably good general condition and if he continues to have abundant foul sputum, perhaps with hemoptyses, and to remain in a mildly toxic condition, a lobectomy must be considered because now nothing but actual removal of the purulent, abscess-laden tissue can be expected to rid him of his obnoxious, dangerous disease. The miserable invalidism and usually eventual fatal outcome in advanced bronchiectasis are obvious reasons favoring a lobectomy. David Stewart[20] found that 60 of his patients had had 240 complications among them.

We are convinced that two-staged lobectomy is now firmly established as an operation of tremendous value for such patients as are discussed in the preceding paragraph. The operative mortality ranges between 20 and 30 per cent in the most experienced hands, which is a 50 per cent improvement within a period of the past three or four years. Krampf,[21] however, reports for Sauerbruch only a 10.7 per cent mortality in twenty-eight cases. Thoracic surgeons have profited much from their earlier mistakes and it seems quite likely that their more recent series of cases will show still lower operative mortality figures. The improvement that follows total removal of the only diseased lobe is truly remarkable and is in striking contrast to the pitiable condition of the patients before operation. Sputum usually disappears completely and, in our experience, which has been chiefly with the exteriorization method of lobectomy, most of our patients who have not been operated on too recently have had their residual bronchial fistulas completely closed by a plasty of pedicled muscle and two have closed spontaneously. Such patients may be classified as completely cured. Two of our ten patients were 5 years old at the time of operation, four others were less than 20, and all were less than 36. Cure at such age implies a great many years of normal life, whereas the outlook of the same patients without operation would have been wretched and almost hopeless.

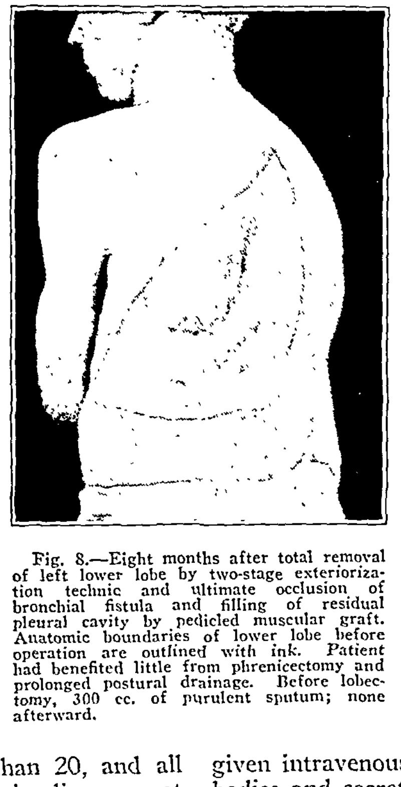

Fig. 8.—Eight months after total removal of left lower lobe by two-stage exteriorization technic and ultimate occlusion of bronchial fistula and filling of residual pleural cavity by pedicled muscular graft. Anatomic boundaries of lower lobe before operation are outlined with ink. Patient had benefited little from phrenicectomy and prolonged postural drainage. Before lobectomy, 300 cc. of purulent sputum; none afterward.

When in a given case we believe that the indications for lobectomy are clear, we place the facts with respect to risk and improvement squarely before the patient or his relatives. Almost all choose the operation if for no other reason than that the frequent coughing and abundant foul sputum during months or years have made life a burden. Failure of the various therapeutic measures that have been systematically tried before lobectomy is recommended tends strongly to influence the patients to accept lobectomy.

For cases in which the pleurae over the diseased lobe are extensively adherent, we recommend the staged cautery lobectomy that Evarts Graham[22] has so ably developed. Performed as Graham directs, the operation is an excellent one.

For cases in which the pleurae of the diseased lobe are not extensively adherent, and most are not, we believe that the exteriorization lobectomy described by Whittemore[23] is the operation of choice. Alexander will soon publish a description of certain modifications in the technic that seem to have proved of great value. Sauerbruch[6] favors extrapleural pneumolysis and Zaaijer and Suermondt[24] favor intrapleural pneumolysis and gauze packing as a preliminary to lobectomy. Although we have not used this, we at present prefer, on theoretical grounds, the exteriorization technic we use. Some surgeons advise extensive paravertebral thoracoplasty preliminary to lobectomy. We doubt whether this is important in bettering the operative conditions for lobectomy and we believe that it should not be used chiefly for this purpose because (1) it has a considerable operative mortality of its own and (2) it practically excludes from respiratory function the remaining lobe on the operated side, whereas this lobe continues to function after lobectomy by the exteriorization or cautery technic.

SUMMARY

1. Suppurative pneumonitis not rarely complicates operations, pneumonia and infections of the mouth and sinuses.

2. In the early stages of the disease, medical treatment is best and often cures. If it fails after a reasonable trial, surgery frequently offers an excellent chance for cure, provided operation is not unduly delayed.

3. The most useful medical and surgical methods of treatment are: sanatorium regimen; frequent postural drainage; elimination of mouth and sinus infection; neoarsphenamine given intravenously; bronchoscopic removal of foreign bodies and secretions; artificial pneumothorax; temporary or permanent interruption of one phrenic nerve; extrapleural pneumolysis; extrapleural thoracoplasty; drainage of an abscess; lobectomy.

4. Selection of the best therapeutic procedure for each of the types of suppurative pneumonitis must be highly individualized. The simplest appropriate measure should be chosen first, and as soon as it is seen to be inadequate the next more radical one used.

5. This article undertakes to describe what we believe to be a logical succession of the nonsurgical and surgical measures that we have found of value for various types of suppurative pneumonitis.

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[17] Hedblom, Carl: Uncomplicated Unilateral Bronchiectasis, Arch. Surg. **14**: 389 (Jan.) 1927.

[18] Harrington, S. W.: The Surgical Treatment of Pulmonary Suppuration, J. A. M. A. **87**: 1200 (Oct. 9) 1926.

[19] Roberts, J. E. H.: Bronchiectasis: Recent Advances in Treatment and Diagnosis, Lancet **2**: 1106 (Nov. 27) 1926.

[20] Stewart, D. A.; Pritchard, J., and Ross, E. L.: Canad. M. A. J. **17**: 1116 (Oct.) 1927.

[21] Krampf, F.: München. med. Wchnschr. **76**: 870 (May 24) 1929.

[22] Graham, E. A.: Cautery Pneumectomy for Chronic Suppuration of the Lung, Arch. Surg. **10**: 392 (Jan.) 1925.

[23] Whittemore, Wyman: Ann. Surg. **86**: 219 (Aug.) 1927.

[24] *Zaaijer and Suermondt: Personal communication to the authors, July 31, 1930.*

POSTOPERATIVE PULMONARY HYPOVENTILATION *

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During the past decade, discussions of postoperative pulmonary complications have concerned themselves for the most part with pathologic processes within the lung itself. As a result of this, surgeons have been confronted with a rapidly changing nomenclature in relation to the pulmonary condition which so frequently follows abdominal operations and which later either disappears or progresses into a classic postoperative pneumonia. Hypostatic congestion, multiple embolic phenomena and pneumonitis are familiar conditions. More recently attention has been focused on the thick, viscid mucus, the bronchial tree, and atelectasis. After it was established that occlusion of a main bronchus caused massive or lobar collapse, the papers of Elwyn,[1] Mastics, Spittler and McNamee,[2] Lee and Tucker [3] and others began to appear in which were described a more diffuse process, a lobular atelectasis, presumably caused by mucous occlusion of smaller bronchi. Practically every writer on this subject has emphasized the sequence of events as follows: excessive and thickened bronchial secretion, inadequate bronchial drainage, the inhibition of the cough reflex, air absorption, and apneumatosis. To complete this conception, a nonfunctioning pulmonary tissue was finally provided which could progress into pneumonia if infection should be present.[4]

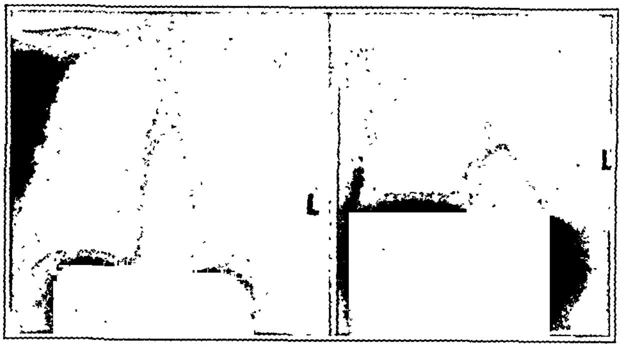

Fig. 1 (Mrs. E. S.).—Bedside roentgenograms made before and twenty-four hours after cholecystectomy. Uniform distance, bed position and exposure. Examination made at full inspiration. Elevated position of diaphragm and diminished thoracic volume are evident. Note increased density of hilus shadows and intensification of lung markings which make interpretation of postoperative roentgenograms difficult. Value of preoperative examination for comparison is demonstrated.

Recently, however, Van Allen [5] has shown that occlusion of anything less than a lobe bronchus does not result in atelectasis of that portion of the pulmonary tissue. In other words, lobular atelectasis cannot be caused by bronchial occlusion alone. This work suggests that one look outside of the bronchial tree and, perhaps, outside the thorax itself for the primary changes which deliver the postoperative abdominal case into a group in which the potentialities of pneumonia are great.

I propose in this paper to discuss variations from the normal anatomic and physiologic conditions below the diaphragm which occur after laparotomy and their effect on the position and activity of the diaphragm. I will present evidence which, I believe, indicates that pulmonary hypoventilation exists for a variable period of time after operation. The causative factors for hypoventilation and the extent to which it exists after operation have not been given the attention they merit because the clinician has focused his attention on the lesion above the diaphragm and has neglected the relationship of cause and effect.

Following abdominal operations, many patients complain of a "heavy feeling" or sense of oppression about the lower part of the thorax, often of dyspnea, or of an inability to "take a comfortable breath." Frequently breathing becomes predominantly upper thoracic in type. The exact length of time over which these complaints are made varies. The extent of the respiratory excursions during forced breathing is little more than that required for quiet breathing. Last year, in a routine study of the chests of patients before and after upper abdominal operations, Muller, Pendergrass and I [6] found a 75 per cent diminution of chest expansion after operation. The thoracic circumference became greater after operation. The measurements of the thoracic circumference during both phases of respiration after operation corresponded closely to those at fullest inspiration before operation. On auscultation diminished breath sounds, often râles, and, occasionally, tubular breathing were heard posteriorly over the bases. In some patients, varying degrees of cyanosis were present. These observations indicate that free, normal respiratory activity is interfered with after the abdomen has been opened.

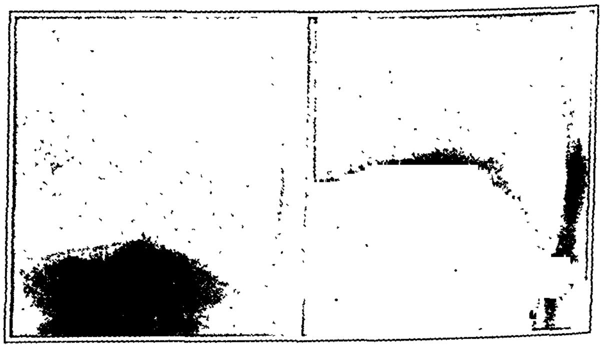

Fig. 2 (Mrs. E. S [illegible] made before and twenty-four hours [illegible] elevation of diaphragm. The [illegible] patient was uneventful.

A surprising difference was noted in roentgenograms taken in the same position, in the same phase of respiration, and with the same exposure, before and after abdominal operations. The superior-inferior diameter of the thorax was greatly diminished in the postoperative films because of a marked elevation of the diaphragm. Diaphragmatic excursions, as observed under the fluoroscope, were found to be reduced from 33 to 50 per cent after operation. In the postoperative roent-

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* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

1. Elwyn, Herman: Postoperative Pneumonia, J. A. M. A. **79:** 2154-2158 (Dec. 23) 1922.
2. Mastics, E. A.; Spittler, F. H., and McNamee, E. P.: Postoperative Pulmonary Atelectasis, Arch. Surg. **15:** 155-197 (Aug.) 1927.
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4. Coryllos, P. N.: Postoperative Apneumatosis and Postoperative Pneumonia, J. A. M. A. **93:** 98-99 (July 13) 1929.
5. Van Allen, C. M.: Obstructive Pulmonary Atelectasis: Certain Considerations Relative to Pathogenesis and Management, read before the American Association for Thoracic Surgery, May 14, 1930; to be published in the Archives of Surgery.
6. Muller, G. P.; Overholt, R. H., and Pendergrass, E. P.: Postoperative Pulmonary Hypoventilation, Arch. Surg. **19:** 1322-1341 (Dec., part 2) 1929.

genograms of 75 per cent of the patients who showed no clinical evidence of a pulmonary complication, there was present an increased density of the trunk shadows which produced a triangular area of density in the lower lobes (figs. 1, 2 and 3). Examination of the routine postoperative roentgenogram disclosed a condition similar to that previously called by our roentgenologists areas of pneumonitis, bronchopneumonia or lobular atelectasis. Recently, Patey[7] and Brunn[8] have confirmed our observations in the postoperative patient.

The study was extended to include patients before and after lower abdominal operations. In each instance, regardless of the type of anesthetic used, an elevation of the diaphragm is found (fig. 4). There is a retraction of the lower lobe of the lung and a shift in the position of the lower bronchi. The heart is lifted, its horizontal diameter is increased, and it assumes a bulging, squat position. Lateral roentgenograms have been made to show the position and contour of the posterior portions of the diaphragm (fig. 5). By superimposing tracings from the preoperative and postoperative roentgenograms, it is possible to obtain a good comparison of the alteration in the thoracic cage, heart and diaphragm (figs. 3 and 6).

This roentgenologic evidence supplies ample proof that a marked reduction in thoracic volume occurs after an abdominal operation. Anything approaching physiologic aeration of a greater portion of the lower lobes during inspiration is impossible because of the position of the diaphragm and its diminished excursion.

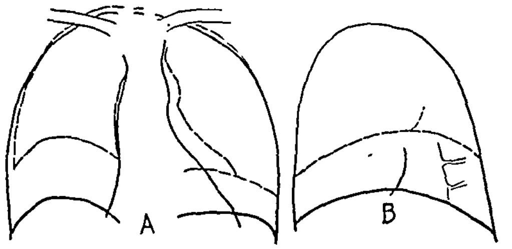

Fig. 3.—*A*, superimposed tracings of roentgenograms shown in figure 1. *B*, superimposed tracings of roentgenograms shown in figure 2. The broken lines indicate outline of thorax in roentgenogram made twenty-four hours after upper abdominal operation. Note position of diaphragm and heart in both the anteroposterior and the lateral views.

Several explanations for the altered position and restricted movement of the diaphragm are available. It is well known that distention of the abdominal viscera, splinting of the abdominal musculature because of pain, and surgical dressings are all factors. The disturbance of the normal pressure relationships in the immediate subdiaphragmatic region that occurs after opening the air-tight abdominal cavity must also be considered. The intraperitoneal pressure in the upper abdomen is subatmospheric.[9] I have demonstrated in animals an upward shift of the diaphragm by changing the intraperitoneal pressure from a subatmospheric, or negative, pressure to a positive pressure.[10] This alteration in pressure also diminishes the diaphragmatic excursions. The change in pressure was produced by two methods, either by the injection of small quantities of air intraperitoneally or by laparotomy (fig. 7). It is beyond the scope of this paper to discuss the factors above the diaphragm which might also play a rôle in this marked diaphragmatic displacement following laparotomy. From our observations there would seem to be a definite mechanical disturbance to respiration as a consequence of the admission of air into the peritoneal cavity.

A study of the vital capacity in 218 patients was made before and after the performance of abdominal operations. An ordinary clinical spirometer was used and the highest of three trials recorded. Records of patients who did not cooperate were discarded. Following operations on the upper abdomen, the vital capacity was reduced 64 per cent of the preoperative or normal value. Following lower abdominal operations, the average vital capacity was reduced 40 per cent of the normal value. In 106 of these patients, studies of vital capacity were made throughout the period of convalescence (fig. 9). The observations are in accord with those of Churchill and McNeil,[11] Head,[12] and Powers,[13] who found similar reductions in the vital capacity of patients after abdominal operations.

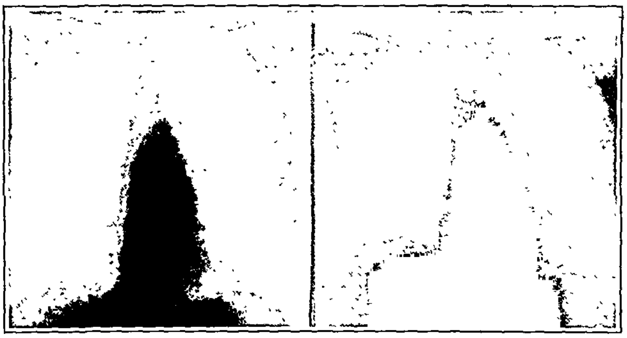

Fig. 4 (Mr. W. C.).—Bedside roentgenograms made before and twenty-four hours after a low abdominal incision was made for releasing peritoneal adhesions. Uniform position of patient, uniform distance and exposure. Examinations made at full inspiration. Note position of diaphragm, squat position of heart and decrease in thoracic volume.

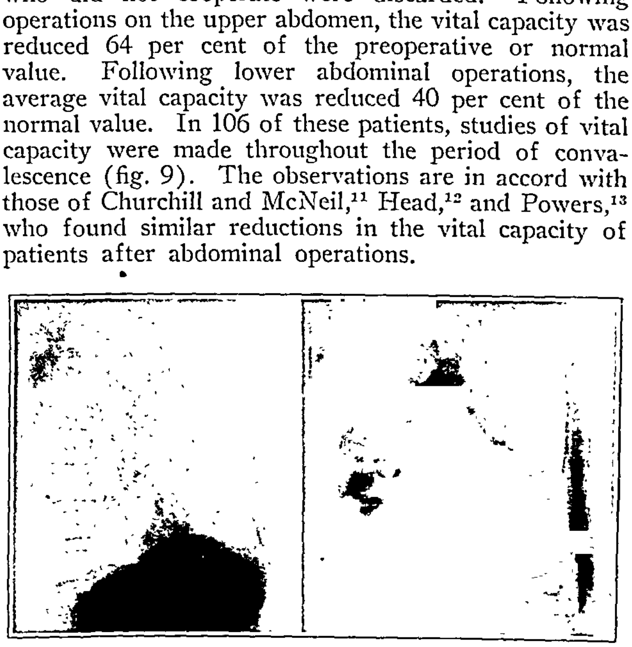

Fig. 5 (Mr. W. C.).—Lateral roentgenograms made before and twenty-four hours after a low abdominal operation. Note marked shift in position of the posterior portion of the diaphragm and obliteration of costophrenic angle posteriorly. The postoperative clinical course of this patient was uneventful.

Thoracic operations were not accompanied by such an extensive reduction of the vital capacity, which was low previous to operation. In twelve patients on whom a thoracoplasty was done or a mediastinal tumor removed, the average postoperative vital capacity was 72 per cent of the preoperative value. Head also found less variation in the vital capacity after thoracic operations.

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[7] Patey, D. H.: The Effect of Abdominal Operations on the Mechanism of Respiration, Brit. J. Surg. **17**: 487-497 (Jan.) 1930.

[8] Brunn, H.: Observations on Postoperative Pulmonary Atelectasis: Consideration of Some Factors in Etiology, Prevention and Treatment, read before the American Surgical Association Meeting, May 15, 1930, at Philadelphia; to be published in the Annals of Surgery.

[9] Overholt, R. H.: Observations on Intraperitoneal Pressure, read before the Philadelphia Academy of Surgery in March, 1930; to be published in the Archives of Surgery.

[10] Overholt, R. H.: The Effect of Air Beneath the Diaphragm on Its Position and Activity, read before the American Society for Thoracic Surgery, May, 1930; to be published in the Archives of Surgery.

[11] Churchill, E. D., and McNeil, Donald: The Reduction in Vital Capacity Following Operation, Surg. Gynec. Obst. **44**: 483 (April) 1927.

[12] Head, J. R.: The Effect of Operation upon the Vital Capacity, Boston M. & S. J. **197**: 83 (July) 1927.

[13] Powers, J. H.: Vital Capacity: Its Significance in Relation to Postoperative Pulmonary Complications, Arch. Surg. **17**: 304-323 (Aug.) 1928.

All of the clinical and roentgenologic evidence in regard to the degree of postoperative pulmonary hypoventilation followed so closely the evaluation of the vital capacity that this test was used to determine the importance of various factors which influence respiratory action in the postoperative abdominal case. The relation of the position of the patient, the surgical dressing, the presence of pain, and the effect of the laparotomy itself without the pain factor were investigated.

The vital capacity of a large number of patients was taken in the semi-Fowler and horizontal positions. The bed position influenced the breathing little. The vital capacity was decreased less than 4 per cent in the horizontal position.

Determinations of vital capacity were made in seventy-nine patients before and after application of a muslin, many-tailed abdominal binder, and the results are given in the accompanying table. Only a slight reduction was noted in the preoperative group following the application of the binder. However, approximately a 15 per cent reduction in the vital capacity could be attributed to a tightly fitting abdominal binder, applied postoperatively. When an ordinary surgical dressing of gauze and adhesive tape was applied, very little change in the vital capacity was noted.

Vital Capacity Averages: Position and Dressing

	Number of Patients	Bed Position	
		Semi-Fowler, Cc.	Flat, Cc.
Preoperative	58	2,759	2,695
Postoperative	43	1,786	1,718
		Abdominal Binder	
		Before Application	After Application
Preoperative	54	2,740	2,661
Postoperative	25	1,798	1,520

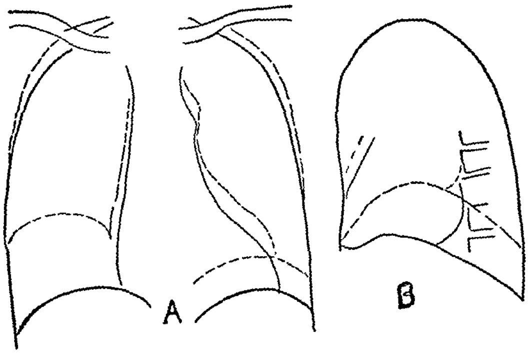

Fig. 6.—*A*, superimposed tracings of roentgenograms shown in figure 4. *B*, superimposed tracings of roentgenograms shown in figure 5. Dotted lines indicate outline of thorax in roentgenogram made twenty-four hours after a lower abdominal operation. Altered positions of diaphragm and heart are clearly shown. Note change in thoracic volume.

The effect of the partial abolition of pain by the administration of one-sixth grain (11 mg.) of morphine sulphate hypodermically was studied in thirty-five patients. The vital capacity was definitely greater thirty minutes after the administration of the drug (fig. 10). In ten patients the drug was administered both before and after operation and repeated determinations of the vital capacity were made and compared. A slight depression was noted in the preoperative patients, whereas postoperatively a definite improvement was noted.

The effect of pain in limiting respiration after operation was also investigated by studying patients still under the influence of spinal anesthesia. Vital capacity determinations were made: (1) with the patient on the operating table before the administration of the spinal anesthetic; (2) ten minutes after induction of spinal anesthesia by administration of from 100 to 200 mg. of procaine hydrobromide; (3) after the abdominal operation but before the return of cutaneous sensation, and (4) six hours later. The first reading served as a control while the second disclosed any alteration in vital capacity due to the spinal anesthesia itself. The third reading indicated the mechanical changes in respiratory activity due to the opening of the abdomen alone without the inhibiting effect of pain. The last reading taken after the disappearance of anesthesia indicated the extent of postoperative ventilation with all factors, including pain, being present. Records of noncooperative patients and those of patients with low blood pressure or intercostal paralysis were excluded. Satisfactory determinations were made in forty-one patients.

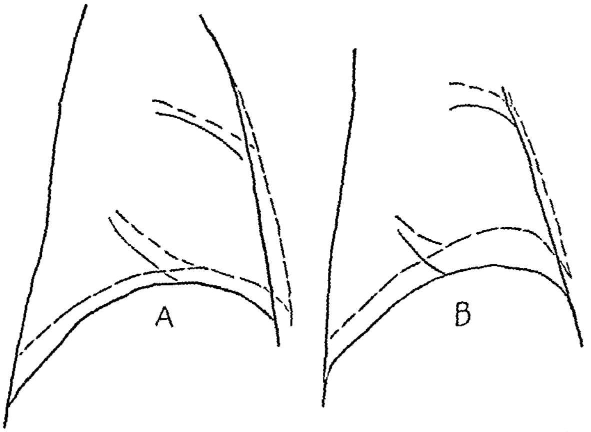

Fig. 7.—Superimposed tracings of lateral roentgenograms of two dogs anesthetized by a soluble barbital compound. All exposures made at full inspiration. *A*, dog 897: solid line indicates outline of thorax before 50 cc. of air per kilogram was injected intraperitoneally; dotted line indicates position after intraperitoneal air injection. *B*, dog 901: tracings made before and after laparotomy. Note high position of diaphragm and elevation of heart and costal arch in both animals.

Five patients on whom lower extremity or perineal operations were performed were used as controls. Vital capacity determinations were carried out in this group in a manner similar to that used in the abdominal group. In addition, a vital capacity reading was taken thirty minutes after the induction of anesthesia at the time the intercostal muscles were paralyzed. A fall in the vital capacity was noted while the intercostal muscles were not functioning, but a return to the normal level took place after the operation and after there had been a restoration of thoracic movements.

In the abdominal group a slight reduction in the vital capacity followed spinal anesthesia alone. The operation itself caused a marked fall in the vital capacity, even though the operation merely consisted of an exploratory laparotomy. After the disappearance of the effects of spinal anesthesia, a still greater reduction was noted (fig. 11).

From this study it would seem probable that a mechanical interference with respiration occurs at the time the abdomen is opened. This is confirmed by the experimental evidence, which demonstrates the fact that an elevation of intraperitoneal pressure, either by laparotomy or by injection of air, will cause an elevation of the diaphragm with restriction of diaphragmatic activity. Since the first measurement of vital capacity after operation was made at a time when the pain factor was absent, it seems justifiable to conclude that not all the faulty breathing after abdominal operations is due to pain. That pain is also an important factor cannot be denied. The further reduction in the vital capacity after the disappearance of anesthesia can be attributed to the splinting of the abdominal musculature because of pain.

All the evidence accumulated in our study of the postoperative pulmonary status of patients tends to show that the greatest single difference between the chest of the preoperative patient and the chest of the postoperative patient is a marked reduction in pulmonary ventilation. With the diaphragm elevated, the lower pulmonary lobes must necessarily retract and the contour and size of the bronchi suffer alteration. Faulty descent of the diaphragm prevents a proper interchange of air in the alveoli of the lower lobes and the movement of the air in the bronchioles is retarded if not actually stopped.

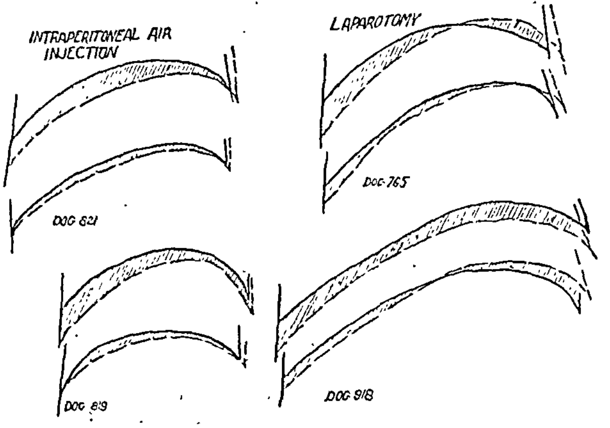

Fig. 8.—Tracings from fluoroscopic observations of diaphragmatic excursions in animals before and after a pneumoperitoneum had been produced either by intraperitoneal air injection or by laparotomy. The lower tracing of each animal indicates the extent of the excursion after the induction of a pneumoperitoneum. Note diminution of excursion.

Whether or not the poorly ventilated basal portions of the lung go on to complete atelectasis depends on the extent of the diaphragmatic elevation, the degree and duration of the hypoventilation, and other factors which might cause the complete closure of many of the smaller bronchi. Whether or not the postoperative patient with a poorly ventilated lung develops pneumonia depends on the presence of an infectious agent. However, since an extreme degree of hypoventilation can be demonstrated after every abdominal operation, it seems logical that primary consideration should be given to this factor, in any consideration of postoperative pulmonary complications. The administration of carbon dioxide, as suggested by Henderson and Haggard,[14] is the most effective method of increasing pulmonary ventilation. Its routine postoperative use has been proved valuable by Scott and Cutler,[15] Sise, Mason and Bogan,[16] Dzialoszynski[17] and others. In cases in which symptoms of hypoventilation are very evident, treatments with carbon dioxide are given at regular intervals for a period of three or four days postoperatively. Frequent turning and deep breathing exercises should be resorted to early in every case.

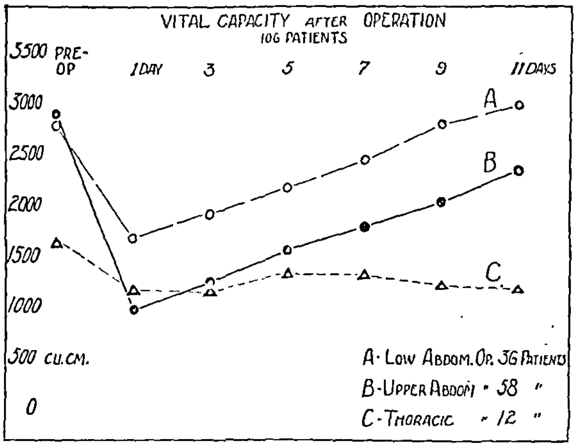

Fig. 9.—Average vital capacity measurements before operation and at two-day intervals after operation. Note extent of fall in vital capacity in the upper abdominal group. The gradual return toward the preoperative value is evident as the period of convalescence lengthens. The thoracic group had a low average preoperative vital capacity and this value was little influenced by operation.

My associates and I have been extremely interested in a method of restoring the intraperitoneal pressure to its normal subatmospheric status in order to prevent the elevation of the diaphragm and the consequent pulmonary involvement. Our clinical experience is too limited to warrant publishing results at this time. However, we wish to suggest a postoperative procedure that we are trying in an effort to overcome or shorten the duration of the mechanical disturbance of diaphragmatic activity following abdominal operations. With the abdomen open, the diaphragm is pulled farther within the thorax by the negative intrapleural pressure because other resisting forces have been removed. We attempt to force the diaphragm to a lower position and to reexpand basal portions of the lung as the abdomen is sealed. This is done by having the anesthetist give carbon dioxide inhalations under positive pressure as the abdomen is closed. Air in the abdominal cavity is displaced by physiologic solution of sodium chloride,

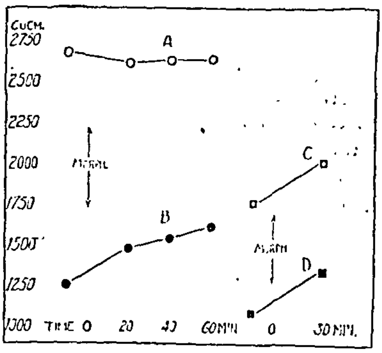

Fig. 10.—Effect of the administration of morphine on vital capacity. Group A represents the average vital capacity estimation in ten preoperative patients. Morphine slightly lowered the vital capacity. In the same patients after an abdominal operation, group B, the vital capacity was improved by morphine administration. Group C shows the average effect of morphine given to twenty-three patients after a low abdominal operation. Group D represents the effect in twelve patients after an upper abdominal operation.

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[14] Henderson, Yandell; Haggard, H. W., and Coburn, R. C.: The Therapeutic Use of Carbon Dioxide After Anesthesia and Operation, J. A. M. A. **74:** 783-786 (March 20) 1920.

[15] Scott, W. J. M., and Cutler, E. C.: Postoperative Massive Atelectasis: The Effect of Hyperventilation with Carbon Dioxide, J. A. M. A. **90:** 1759-1763 (June 2) 1928.

[16] Sise, L. F.; Mason, R. L., and Bogan, I. K.: Prophylaxis of Postoperative Pneumonia: Preliminary Report of Some Experiments After Upper Abdominal Operations, Current Researches in Anesthesia and Analgesia **7:** 187-190 (May-June) 1928.

[17] Dzialoszynski, A.: Apparatur zur Kohlensaureinhalation und bildliche Darstellung der Kohlensaurenwendung am kranken, Deutsche Ztschr. f. Chir. **205:** 22, 1927.

and this is removed by suction when the peritoneum is finally closed. Absorption of air in the peritoneal cavity is slow, as roentgenograms taken from a week to ten days after laparotomy often show a film of air beneath the diaphragm. Water, however, gravitates to dependent portions of the abdominal cavity and, with sagging of the walls, tends to decrease the pressure in the subdiaphragmatic region.

Since it makes little difference in the vital capacity of patients whether the bed is flat or in the semi-Fowler position, it would seem wise to maintain the most comfortable position. If bronchial secretions are abundant, the foot of the bed should be raised at intervals to promote natural bronchial drainage. The ordinary surgical dressing restricts breathing little. However, a tightly fitting, many-tailed binder decreases the vital capacity and should not be used when there is pulmonary embarrassment.

The free postoperative use of morphine should be encouraged. Improvement in the vital capacity and an increase in freedom of respiratory effort were noticeable as the abdominal pain diminished. This is contrary to the belief of Jackson,[18] Bowen [19] and others, who, because of their fear of the loss of the cough reflex, warn against the use of morphine. We feel that the increased ventilation and increased ability to clear the throat which result from the decrease in pain far outweigh any objection to the postoperative use of morphine. Davis [20] found a distinct improvement in the arterial oxygen saturation in pneumonia cases when morphine was used to control pleuritic pains that were limiting respiratory excursions.

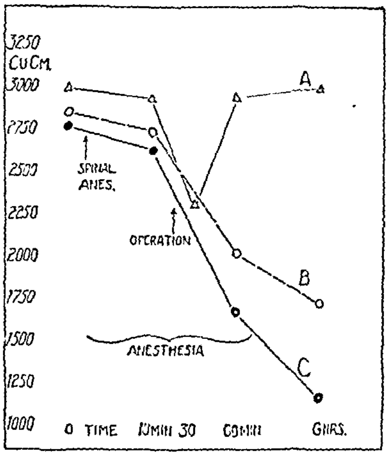

Fig. 11.—Effect of spinal anesthesia and operation on vital capacity. Group A, five patients in whom operation was on lower extremity. Group B, average vital capacity values in twenty-one patients on whom low abdominal operations were performed. Group C shows vital capacity values in twenty patients on whom upper abdominal operations were performed. Readings taken (1) before anesthesia; (2) after spinal anesthesia; (3) after operation while anesthesia is still present; (4) after operation after disappearance of anesthesia. Note marked fall in vital capacity in both abdominal groups, B and C, after operation, while anesthesia was still present and when pain was not a factor. Note further reduction in last reading when abdominal pain was present.

The routine use of the Roth-Barach oxygen chamber after abdominal operations has proved unnecessary. An increase in the percentage of oxygen in the inspired air decreases the amplitude of the respiratory excursions and therefore induces shallow breathing. We are at present carrying out a study of oxygen saturation of arterial and venous blood of patients before and after abdominal operations. The results so far obtained indicate that a fairly large proportion of these patients have a decrease in the arterial oxygen saturation. In patients that suffer from anoxemia, as evidenced by cyanosis, dyspnea and an increased rate of respiration that cannot be relieved by increasing pulmonary ventilation, oxygen therapy after operation is of distinct value. We use the oxygen chamber as routine procedure in all cases in which the condition has proceeded beyond one of hypoventilation; i. e., in cases of a bronchopneumonia.

SUMMARY

Evidence has been presented that a marked degree of pulmonary hypoventilation exists for a variable period of time after abdominal operations. Thoracic volume is decreased and expansion of the lower lobes is prevented by a high position of the diaphragm. A restriction of the diaphragmatic excursions contributes to the faulty aeration of basal portions of the lung. The opening of the abdominal cavity and the entrance of air permit the negative intrapleural pressure to draw the diaphragm higher in the thorax. Besides this mechanical factor, a reflex splinting of the abdominal musculature because of pain is also important in effecting the altered status of diaphragmatic activity after operation.

Rational postoperative treatment should include all measures that tend to overcome the faulty ventilation of the pulmonary tissue. Pain should be controlled by the adequate administration of morphine. A method of abdominal closure that will partially overcome pressure disturbances below the diaphragm is suggested.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ALEXANDER AND BUCKINGHAM AND DR. OVERHOLT

Dr. **George P. Muller**, Philadelphia: In my cases of lung abscess, the duration of the disorder made little difference. Patients recovered who had had this condition for a year or a year and a half. Patients died in whom drainage had been done within three months of the onset. The virulence of the infection, the amount of partial gangrene of the lung that occurs, together with the extent in the more chronic case of the bronchiectasis and the age of the patient, will have a more important influence on mortality. It ought to be remembered that any chronic cough with putrid expectoration is not necessarily tuberculous. In my series, 42 per cent of the patients had had hemoptysis, many of them having been treated for a long time, even in sanatoriums, for tuberculosis. Also, proper emphasis was placed on the great value of recognizing a chronic suppurative sinusitis in these patients. As Graham said, in a number of instances he cured children with a suppurative disease of the lung simply by having their sinuses attended to. Drs. Alexander and Buckingham brought out the point directly that in suppurative disease of the lung one must proceed slowly and cautiously from the minor to the major procedure. Many of these patients are cured by rest and postural drainage, helped by an occasional bronchoscopy. Some are helped by phrenicectomy. Some have to come to external drainage, and those will be largely the patients with a cavity which does not drain into the bronchus, because, after all, what difference does it make whether a patient's lung drains into a bronchial tube or through an external opening, provided the cavity can be collapsed and the patient gets well? If there is a more diffuse process in the lung, involving an entire lobe, with a bronchiectasis, it is certain that simple drainage is ineffectual, and one then is forced to do a cauterization or lobectomy by exteriorization. I also think they made a good point in bringing out the fact that the modern treatment of a suppurative lung for drainage requires the removal of, say, three ribs. The simple removal of a rib and the cutting of a small hole and the putting in of drainage is not satisfactory.

Dr. **Carl R. Steinke**, Akron, Ohio: I want to emphasize the idea of not using artificial pneumothorax in lung abscesses. About the only location in which it could be properly used would be in the hilus type. Much safer would be the temporary interruption of the phrenic nerve. When I have wanted to compress the apex permanently, I have been using the method of turning up the periosteum of the second to the fourth ribs after resecting the ribs. It is well known that, in the production of pulmonary complications, hypoventilation or obstruction is nearly always essential. If the pneumococcus is present, pneumonia will develop. If mixed infection of staphylococci or anaerobes or sometimes streptococci are present, abscess or gangrene is apt to develop. In bronchiectasis, it is known that a good many cases are congenital, and the condition should be seen earlier if one expects to obtain good results surgically. The old chronic types are serious and require several operations, and sometimes operations are not beneficial. The stage operation in these conditions is essential. I have made it a practice, while sewing up the abdomen, to use 10 per cent carbon dioxide and 90 per cent oxygen for inhalation to procure increased ventilation. Since using this method I have reduced the number of cases with postoperative pulmonary complications. The lowered vital capacity is probably one of the main factors in the production of these conditions. Pulmonary complications following upper and lower abdominal operations are in about the same proportion as the difference in reduction of vital capacity in the upper and lower abdominal operations. In doing operations on the phrenic nerve, I have devised a stripper to use in certain cases. The open stripper is used when the nerve is crushed and I wish to tear off the accessory. The closed one can be used in phrenic exeresis. In doing operations on the chest with the patient on the side, I have devised an arm rest for taking care of the arm and forearm. The position of this rest can be changed to take care of the position of the patient on the table. The under rest is for the underarm when the physician wants it to come in front of the patient. Straps or towels should be placed around the arm to fix it in position.

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[18] Jackson, Chevalier: Postulates on the Cough Reflex in Some of Its Medical and Surgical Phases, Therap. Gaz. 44: 609-610 (Sept.) 1920.

[19] Bowen, D. R.: Acute Massive Collapse (Atelectasis) of the Lung, Am. J. Roentgenol. 21: 101-141 (Feb.) 1929.

[20] Davis, J. S., Jr.: Effect of Morphine on Respiration in Pneumonia, J. Clin. Investigation 6: 187-202 (Oct.) 1928.

THE USE OF MECHANICAL MEASURES IN THE TREATMENT OF OBSTINATE EDEMA *

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The treatment of severe and refractory edema of the lower extremities has occupied the attention of physicians for many centuries. The celebrated Roman philosopher Celsus,[1] of the first century A. D., in a chapter on "De Hydropicis," called attention to the beneficial effects of a low fluid intake as well as to the increased elimination of fluid by excessive sweating; but in addition to these measures it is of considerable interest to find the following recommendation given by him for the treatment of dropsy: "Above all an incision ought to be made, of almost four fingerbreadths, on the inner side [of the leg], from which much fluid may drain for several days." Although even today this original recommendation of Celsus is occasionally resorted to, more appropriate measures are now available.

Great progress has been made during the last fifty years in the direction of a better understanding of cardiac and renal disease. The realization of the importance and of the rational use of digitalis in patients with early congestive failure, the introduction of the caffeine diuretics, and more recently of merbaphen (novasurol) and mersalyl (salyrgan), have proved very efficacious in the prevention and control of anasarca. However, in spite of these measures, a case of extreme edema is occasionally encountered that resists all efforts at medical control. It is this type of case that we shall consider here, calling attention to the numerous procedures that have been employed for combating such a distressing situation, in particular one which, although introduced more than fifty years ago by Reginald Southey,[2] has largely been forgotten. We believe that this measure proposed by Southey has a definite place in the treatment of patients with obstinate edema.

By the mechanical removal of considerable quantities of excessive edema fluid, one may hope to accomplish a threefold purpose: in the first place, by reducing the size of the distended parts, the patient is made more comfortable; secondly, the already overtaxed and failing circulatory system is relieved of an additional burden; and, finally, the partial removal of what has been called by Galli [3] the "peripheral barrier" to the circulation favors a more adequate resorption of the remaining fluid by subcutaneous veins and lymphatics when these have been embarrassed by the pressure of the edema fluid.

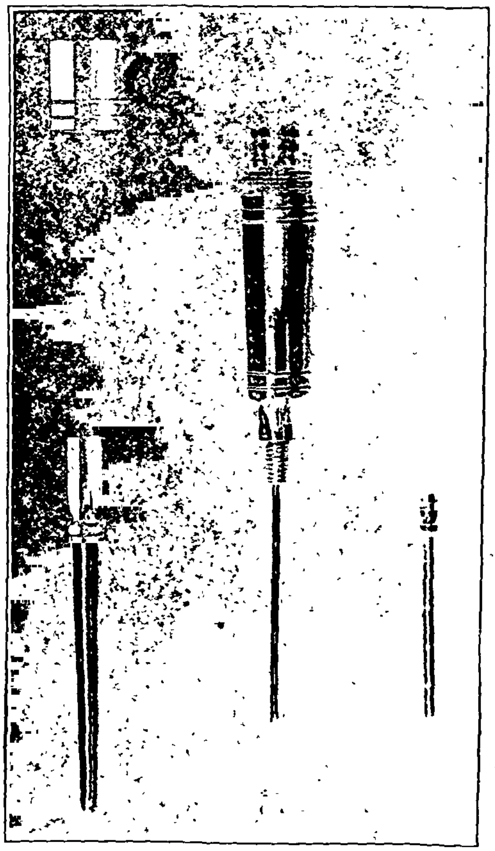

Fig. 1.—Southey's trocar and cannulas, actual size. In the handle of the trocar is a compartment in which four cannulas are carried.

Of the local measures that have been employed in the treatment of edema in general, we shall discuss briefly the ones that to us seem of greater interest. They fall into three groups:

1. In relatively slight edemas, such mechanical procedures as gentle massage and elevation of the part lessen the tension, make the patient more comfortable,

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[*] From the Cardiac Clinic of the Massachusetts General Hospital.

[*] Read before the Section on Pharmacology and Therapeutics at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

[1] Celsus, Aurelius: De Re Medica, book III, chapter XXI.

[2] Southey Reginald: Chronic Parenchymatous Nephritis of the Right Kidney, Left Kidney Small and Atrophied, Old Scrofulous Pyelitis, Tr. Clin. Soc. London **10:** 152, 1877; Traitement de l'anasarque général par un drainage capillaire, Compt. Rend. Assoc. franç. pour l'avance d. sc. **6:** 856, 1877.

[3] Galli, Giovanni: Un nouveau trocart pour l'évacuation de l'oedème cardiaque, Arch. de mal. du cœur. **16:** 391, 1923.

and promote the absorption of the excess fluid. These measures, in addition to medical treatment, are usually sufficient to control the situation.

2. The application of hypertonic solutions, usually a dressing containing a solution of sodium chloride in glycerin, has been employed and recommended by Carnot,[4] *provided the skin is intact. Edematous legs are said to shrink several centimeters in twenty-four hours.* We have not attempted this, as it has appeared impracticable to us.

3. In the presence of a large amount of fluid, several surgical measures for its evacuation are available:

(*a*) Acupuncture, in which multiple small needle pricks are made into the edematous parts, thereby permitting fluid to exude for several days, has been widely practiced during the past century, and striking relief has been noted in numerous patients following the drainage of considerable amounts of fluid. However, as has been pointed out by others, all who have used this method are acquainted with the serious drawbacks attending ordinary puncture of the distended limbs. The fluid that drains away is difficult to collect and to control. The patient's skin is constantly exposed to an irritating and decomposing body fluid, which promotes infection and ulceration; erysipelas sometimes follows, may accelerate the patient's death and greatly increase the suffering of the last few days of life, while the constant wetting of the bedclothes keeps the patient damp and cold, and is an undesirable feature.

(*b*) Long, deep incisions have been employed by others and by this method as much as 30 liters of fluid is said to have been obtained in twenty-four hours.[5] In 1927, Sépet[6] used this procedure on fourteen patients and reported excellent results in all cases with the evacuation of much fluid, regression of the edema, increased urination and improved cardiac action. It would seem, however, that except in rare cases this procedure is undesirable and that it may be attended by some danger to the patient. Rarely, in the past, even more heroic measures have been attempted, such as that recorded by Finch[7] in 1823 in a "case of anasarca in which amputation was successfully employed, and the fluid discharged by it."

(*c*) Finally, what appears to us the simplest, safest and most desirable method of treating obstinate edema of considerable degree is the one originally recommended by Southey. Although it is frequently mentioned in textbooks and occasionally in the literature, we have reason to believe that its value is not generally appreciated, and certainly not in America.

In 1877, Reginald Southey, a physician of St. Bartholomew's Hospital in London, realizing the limitations and dangers of the procedures previously employed, perfected a method of subcutaneous drainage by means of small capillary tubes which are shown in figure 1 and which bear his name. The apparatus is simple in design and consists of a small metal trocar and cannula, the latter containing several lateral perforations permitting a free flow of fluid. In the handle of the trocar is a compartment in which additional cannulas are carried. The use of the instrument is not difficult. The skin at the sites selected for insertion, usually the outer and inner aspects of the lower parts of the legs, the dorsum of the feet, or the scrotum, is cleansed aseptically, a wheal is made with procaine hydrochloride, and a small amount of sterile ointment is applied to prevent local irritation. The trocar and cannula are inserted deeply into the swollen part; the cuff of the cannula is held firmly with a clamp while the trocar is withdrawn and a small rubber tube attached.[8] *Fluid wells up immediately and continues* to flow in steady drops from the cannula until the rubber tube is in place; this, in turn, is led off to a suitable receptacle placed beneath the bed for the collection of the fluid. As many tubes may be used as seem desirable; we have found that two in each leg are usually adequate; they are left in place for from one to several days and cause surprisingly little discomfort to the patient. *There is ordinarily no leakage about the cannula*; the skin and dressing remain dry. Since the flow is constantly away from the site of insertion, the chance of infection is greatly lessened, *and with an ordinary* amount of care we believe that it is relatively slight. Following the removal of the tubes, a moderate amount of fluid may continue to drain for a few days, but the wounds heal without difficulty. Curshmann[9] has designed a larger trocar and cannula *to be used in the same fashion* as Southey's apparatus, but it appears that in the majority of cases, certainly, the latter is adequate.

TABLE 1.—*Cases in Which Southey's Tubes Were Used*

Patient and Age	Diagnosis	Duration of Edema	Result of Withdrawal of Fluid in Reducing Size of Legs or Scrotum	Amount of Fluid Withdrawn, Cc.	Time During Which Fluid Was Removed	Condition of Patient
1. M. C. 63	Hypertensive heart disease	6 mo.	+++	16,000	2 days	Died of bronchopneumonia one month later
2. F. J. 48	Hypertensive and rheumatic heart disease	3 mo.	+++	9,000 3,000	3½ days 1 day	Died of bronchopneumonia one month later
3. E. C. 49	Hypertensive and rheumatic heart disease	12 mo.	++	2,000 (scrotum)	1 day	Living six months later
4. M. L. 44	Hypertensive heart disease	3 mo.	++	3,000	24 hours	Left hospital against advice not traced
5. M. W. 29	Rheumatic heart disease	30 mo.	++	3,000 1,900	24 hours 2 days	Died of heart failure two weeks later
6. R. C. 52	Hypertensive heart disease	4 mo.	+	1,600	2½ days	Died of bronchopneumonia two weeks later
7. N. G. 56	Hypertensive and coronary heart disease	2 mo.	0	500	? hours	Died of congestive heart failure two weeks later
8. H. A. 77	Abdominal carcinomatosis	2 mo.	0	500	3 hours	Died four hours later

During a recent visit of one of us to the clinic of Sir Thomas Lewis in London our attention was directed, by observation of a certain case, to the excellent results that occasionally may be obtained by the employment of this procedure; 6 liters of edema fluid were removed from the legs by Southey's tubes in three days with great symptomatic relief and objective evidence of improvement. The patient was a young woman with severe rheumatic heart disease, normal rhythm, and congestive failure with extensive anasarca.

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[4] Carnot, P.: Le traitment locale des oedèmes, Paris méd. **11**: 52, 1913.

[5] Dehio, cited by Carnot (footnote 4).

[6] Sépet, M. P.: Saignée séreuse par incision large des téguments dans les oedèmes irréductibles, Marseille méd. **2**: 693 (Nov. 25) 1927.

[7] Finch, F.: London Medical Repository **19**: 205, 1823.

[8] Southey suggested first passing the trocar and cannula through a small slit near the end of the rubber tube. After insertion into the subcutaneous tissue, the rubber tube is readily slipped over the cuff of the cannula.

[9] Curshmann, H.: Zur mechanischen Behandlung der Hautwassersucht, Therap. Monatschr. **8**: 95, 1894.

We have encountered in the course of the past ten months in Boston eight cases of extensive edema, several of which failed to respond adequately to medical treatment, and in these cases we have employed Southey's tubes in an attempt to relieve the anasarca.[10] In seven of the cases the edema was the result of congestive heart failure, and in one case it was secondary to an extensive abdominal carcinomatosis. The results are shown in table 1.

REPORT OF CASES

Case 1.—M. C. (private patient), a man, aged 63, a foreman seen in consultation, had had cardiac asthma for the previous four years; he had been much worse during the last year. For six months he had had edema of the legs which responded to digitalis and merbaphen, but for the past two and one-half months the edema had been reaccumulating, involving the lower extremities, the genitalia and the abdominal wall. Urination had been difficult because of an enlarged prostate and enormous swelling of the scrotum and penis, and frequent catheterization had to be resorted to. On physical examination his heart was found to be very large, auricular fibrillation was present, but the rate was well controlled by digitalis. The blood pressure was 175 mm. of mercury systolic and 100 mm. diastolic. Massive edema of the lower extremities and of the genitalia was present. A diagnosis of hypertensive heart disease with auricular fibrillation and congestive failure was made. Southey's tubes were inserted, two in the dorsum of the right foot, two in the left foot; later, one of those in the right foot was transferred to the scrotum. They were allowed to remain in place two days, and at the end of that time 16 liters of fluid had been collected; of this amount 1 liter had been removed from the scrotum. The patient was greatly relieved and was able to lie flat in bed with considerable comfort, a position which had been impossible before this time. During the course of the next two weeks the edema slowly reappeared; the tubes were again inserted and in twelve hours 2 liters of fluid was drained from the legs; at the end of this time the patient fell from a chair and the tubes were pulled out; the legs were quite soft and therefore the tubes were not replaced. The patient lived a month longer and up to the time of his death there had been very little reaccumulation of the fluid. The relief afforded in this case by the mechanical removal of the fluid (36 pounds, or 16.3 Kg.) was the most striking in our series and almost certainly postponed the fatal termination by several weeks.

Case 2.—F. J. (Massachusetts General Hospital), an American housewife, aged 48, who was known to have had hypertension and rheumatic heart disease for sixteen years, entered the hospital because of edema, dyspnea and attacks of precordial pain, anginal in character, for the preceding two months. She also had mild diabetes, which was easily controlled by diet. On examination she showed evidence of rheumatic and hypertensive heart disease with mitral stenosis and regurgitation and congestive failure with normal rhythm. During the course of several weeks of bed rest, digitalization and administration of diuretics she improved considerably, but slight edema persisted. She was permitted to go to a convalescent home, where in spite of daily digitalis and bed care the edema gradually returned, so that in a few weeks she returned to the hospital with marked congestive failure, massive edema of the legs, edema of the abdominal wall and slight ascites. After a week's trial with diuretics there was no subsidence of the edema. Southey's tubes were inserted and in three and one-half days 9 liters of fluid was withdrawn, which resulted in considerable improvement, subjectively and objectively, with the loss of most of the edema of the body wall and legs. It is of some interest that during the first twenty-four hours there was no change in the size of the legs, but the edema of the body wall decreased considerably. After three and one-half days the tubes were removed; with mersalyl intravenously the anasarca was partially controlled, but it slowly returned during the next three weeks. Although the edema was of only moderate degree, the patient asked that the tubes be reinserted because of the relief obtained from them in the first instance. This was done and 3 liters of fluid was withdrawn, with considerable decrease in the size of the legs. One week later the patient died of bronchopneumonia.

Case 3.—E. C. (private patient of Dr. L. M. Hurxthal), a man, aged 49, entered the Deaconess hospital, Boston, in June, 1928, because of dyspnea, gaseous distention and edema of the legs of about six weeks' duration. He had had rheumatic fever at 21. Physical examination revealed fluid in the chest, considerable edema of the lower legs, and abdominal distention. The heart was very large; the rhythm was absolutely irregular at a rate of about 120. At the apex was a rough systolic murmur. The blood pressure was 200 mm. of mercury systolic and 120 mm. diastolic. A diagnosis was made of hypertensive and rheumatic heart disease with auricular fibrillation and congestive failure. The patient had been overdigitalized and on withdrawal of the drug and the administration of theophylline (theocin) considerable improvement followed. He was readmitted to the hospital in November, 1928, and again in January, 1929, because of recurring and extensive edema. On each occasion the edema subsided following the administration of mersalyl. In December, 1929, he again entered the hospital with moderate edema of the lower legs, a tremendously swollen scrotum (size of a football) and ascites. After the removal of 4 liters of fluid from the abdomen, a single Southey's tube was inserted into the scrotum and at the end of twelve hours 1,200 cc. of fluid had been drained away with marked symptomatic relief to the patient. A Curshmann tube was then inserted also and 800 cc. of additional fluid was removed, so that at the end of twenty-four hours 2 liters of fluid had been collected and the size of the scrotum had receded almost to normal. The edema of the legs subsided following the use of mersalyl and theophylline. In March, 1930, the patient entered the hospital for the fourth time because of tremendous anasarca. The veins in his arms had become thrombosed as the result of numerous previous injections and the response to mersalyl administered intramuscularly was inadequate, so that an incision was made in one thigh from 3 to 4 cm. in length and down to the deep

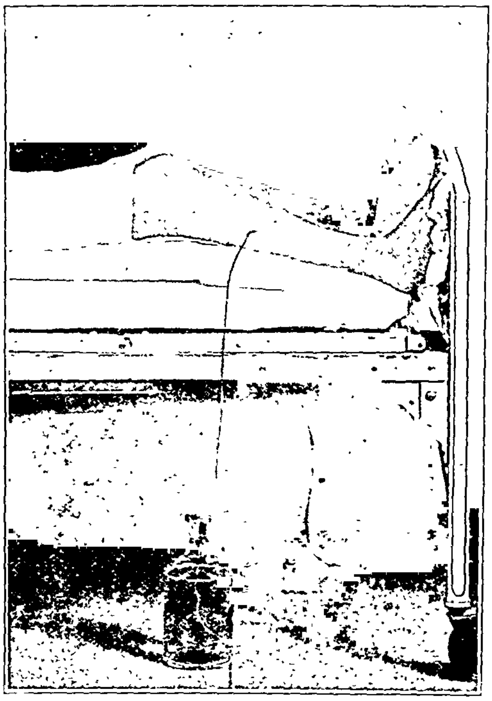

Fig. 2.—Southey's tubes in use.

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[10] One of these patients (case 3 of the table), in the practice of Dr. L. M. Hurxthal, was treated by him with the insertion of Southey's tubes. We are indebted to him for permission to include this case in our series.

fascia, from which 30 pounds (13.6 Kg.) of edema fluid drained away during the following two weeks. Although still alive, the patient is in poor condition and the anasarca is returning.

Case 4.—M. L. (Massachusetts General Hospital), a Polish housewife, aged 44, entered the hospital because of intermittent aching precordial pain, dyspnea, and orthopnea for the preceding five months. For the past three months she had been confined to bed because of the symptoms mentioned and because of edema of the lower extremities. In spite of digitalis she became progressively worse, until at the time of entry she was orthopneic and cyanotic. The heart was very large with normal rhythm and a rate of 100. The sounds were of poor quality. The blood pressure was 150 mm. of mercury systolic and 110 mm. diastolic. There was evidence of marked congestive failure with ascites, massive pitting edema of the legs, and moderate edema of the hands and arms. The electrocardiogram showed right bundle branch block. A diagnosis of hypertensive heart disease with congestive failure was made. An abdominal paracentesis yielded 1,200 cc. of ascitic fluid. Southey's tubes were inserted, two in each leg, and 3 liters of fluid was collected in twenty-four hours, with a definite decrease in the size of the legs. The patient spoke little English, was difficult to manage, and because she repeatedly pulled out the tubes it was decided at the end of the first twenty-four hours not to replace them. The foregoing treatment was followed by the administration of ammonium chloride, mersalyl and theobromine. During her three weeks' stay in the hospital she lost 27 pounds (12.2 Kg.), largely as a result of the subsidence of edema. The patient was considerably improved, but left the hospital against advice, and we have no further information concerning her. In this case, because of her critical condition and acute discomfort on admission, it was thought best to attempt relief of the edema by mechanical methods immediately, rather than to await the slower results to be expected from the use of diuretics; the rapid improvement was gratifying.

Case 5.—M. W. (Massachusetts General Hospital), a housewife, aged 29, entered the hospital with rheumatic heart disease, mitral stenosis and regurgitation, and auricular fibrillation with marked congestive failure. In spite of digitalis and diuretics she had been bedridden for two and one-half years with the development of generalized edema of the extremities, chest wall and face, together with ascites. Because of the slowly increasing edema she was recommended for admission to the hospital. Digitalis and mersalyl had little effect on the anasarca. Two of Southey's tubes were inserted into each thigh and at the end of twenty-four hours 3 liters of edema fluid had been collected, and at the end of three days 5 liters had drained away and the extremities had shrunk to almost normal size, although considerable edema of the body wall remained. The tubes were removed. The edema of the legs did not reaccumulate up to the time of the patient's death from cardiac failure two weeks after the therapy outlined.

Case 6.—R. C. (Massachusetts General Hospital), an Italian housewife, aged 52, entered the hospital with severe congestive heart failure. Five years previously she had been told that she had high blood pressure and heart disease, and because of dyspnea on exertion she was started on digitalis therapy, which had been continued to the present time. Her reserve gradually diminished, so that one year prior to entry she had to stop work because of symptoms of dyspnea and mild substernal oppression. Four months before entry edema of the ankles appeared which became progressively worse. On admission to the hospital she was dyspneic, orthopneic and slightly cyanotic. The heart was markedly enlarged in all diameters; a well marked gallop rhythm was present at a rate of 110. The blood pressure was 230 mm. of mercury systolic and 160 mm. diastolic. There was moisture at both lung bases, the abdomen was distended with fluid, and there was marked edema of the lower extremities and papilledema of both optic disks. The urine showed a slight trace of albumin. A diagnosis of hypertensive heart disease and congestive failure was made. Digitalis was increased to 4½ grains (0.3 Gm.) a day. The removal of 1,250 cc. of fluid from the abdomen gave considerable relief to respiration. Southey's tubes were inserted and during the course of two and one-half days 1,600 cc. of fluid was withdrawn; the skin of the legs was considerably less tense and the patient was more comfortable. The anasarca was well controlled by digitalis and diuretics, but the patient went slowly downhill and died at the end of two weeks of bronchopneumonia.

Case 7.—N. G. (private patient), a grocer, aged 56, seen in consultation, had had severe angina pectoris for three years and for the past two months attacks of cardiac asthma, dyspnea on slight exertion, and increasing edema of the extremities in spite of digitalis and mersalyl. On physical examination he was found to have a very large heart, normal rhythm, pulsus alternans, and evidence of marked congestive failure. The blood pressure was 185 mm. of mercury systolic and 120 mm. diastolic. The edema was extensive. Southey's tubes were inserted but were kept in place with difficulty. A superficial infection developed and it was thought best to discontinue the use of the tubes; only 500 cc. of fluid was obtained. The patient was not relieved, went progressively downhill, and died a few weeks later with marked congestive failure.

Case 8.—H. A. (Massachusetts General Hospital), a factory worker, aged 77, entered the hospital because of abdominal pain, loss of appetite, frequency of urination, and swelling of the legs for two months, becoming progressively worse. On admission he was found to be emaciated and uncomfortable in all positions. There was no edema of the scrotum, and no abdominal fluid could be demonstrated. There was a questionable mass in the epigastrium, thought to be the stomach. The heart was considered normal for a man of his age. His condition was critical; although a definite diagnosis was not possible, abdominal carcinomatosis was felt to be most likely. Because of the marked edema, Southey's tubes were inserted and 500 cc. of fluid was obtained in three hours, without noticeable relief of the tension of the legs. The patient being practically moribund, the tubes were removed, and he died one hour later. Carcinoma of the pancreas, with metastases to the liver and peritoneum, was found at postmortem examination.

Table 2.—*Analysis of Edema Fluid and Comparison With That of Blood Serum and Normal Cerebrospinal Fluid*

	Blood Serum	Edema Fluid	Normal Values for Cerebrospinal Fluid (Ayer and Fremont-Smith)
Case 4			
Sodium, mg. per 100 cc.	328	321	
Chloride (as NaCl), mg. per 100 cc.	514	570	720-750
Nonprotein nitrogen, mg. per 100 cc.	24	23	12-18
Total protein, Gm. per 100 cc.	6.97	0.695	0.10-0.45
Total solids, Gm. per 100 cc.	8.64	1.60	
Sugar, mg. per 100 cc.	98	93	50-75
Case 6			
Sodium, mg. per 100 cc.	313	320	
Chloride (as NaCl), mg. per 100 cc.	553	627	
Nonprotein nitrogen, mg. per 100 cc.	33	27	
Total protein, Gm. per 100 cc.	5.95	0.407	
Total solids, Gm. per 100 cc.	7.82	1.35	

COMMENT

The fluid from two of our patients has been analyzed and compared with an analysis of the patients' blood serum by Dr. Frank Fremont-Smith, who finds that it resembles fairly closely cerebrospinal fluid, except for the higher protein content and the lower chloride content which go hand in hand (table 2).

It will be seen from these cases that one patient did not live a sufficient length of time to give the method an adequate trial. Of the remaining seven patients, one was not relieved and the use of the tubes resulted in a superficial infection which made the patient even more uncomfortable for several days but did not affect the ultimate prognosis. One patient was slightly improved until death two weeks later from bronchopneumonia; five patients were definitely relieved so far as the edema was concerned, and the results in two of these cases were striking. From the nature of the cases selected for this procedure ultimate recovery is anticipated in only a small percentage; however, the mechanical removal of the excessive fluid may be a means of sparing the patient great discomfort, and occasionally it may even postpone indefinitely a fatal termination.

Others have used somewhat similar methods with successful results. DeStéfano[11] has employed direct drainage by means of small platinum needles under the skin, and in his hands this method has proved effective and harmless in 100 cases. In one of his patients 27 liters was evacuated in forty-eight hours; in only one case was there a slight superficial infection, which subsided in the course of twenty-four hours.

SUMMARY AND CONCLUSIONS

1. In eight cases of extensive edema, mostly the result of congestive heart failure and resistant to medical therapeutic measures, we have employed Southey's tubes inserted into the edematous subcutaneous tissue of the legs or scrotum. In two of our patients the results were strikingly beneficial, following the removal of 16 liters in the course of two days in one case, and of 9 liters in three and one-half days in another. In three patients there was moderate relief; in one case only slight improvement was noted; the remaining two patients were not relieved.

2. In suitable cases the use of Southey's tubes is a valuable therapeutic procedure, and we believe that the employment of this method as recommended many years ago by Reginald Southey should be revived.

ABSTRACT OF DISCUSSION

Dr. F. Janney Smith, Detroit: There is unanimity of opinion that hydrothorax, if extensive, should be tapped as the opening move in the treatment of myocardial insufficiency; likewise that ascites, if responsible for a tense abdomen, elevated diaphragm and respiratory embarrassment, should be drained in a similar manner. But the mechanical removal of fluid from the lower extremities by means of Southey's tubes has, for the most part, been placed on the medical museum shelf. In part, this has been due to the increase in our resources in the treatment of edema of cardiac origin, to the development of newer and efficient diuretic drugs, to the increasing use of the high carbohydrate diet in treating the water-logged cardiac patient, and to the general improvement in our knowledge of how to treat congestive cardiac failures as a whole. Again, the management of surgical incisions or punctures in the edematous lower extremities requires the utmost aseptic precautions and aftercare; and the practitioner prefers not to risk the development of a cellulitis with its obvious association with such punctures or incisions. And now Dr. White is taking these medical antiques down from the shelf and putting them rightly back into practical use again. However, in the introduction of Southey's tubes or a suitable trocar into the subcutaneous tissue of the leg and in leaving such tubes in situ, although, owing largely to the steady outflow of edema, secondary infection does not often occur, it is a real danger whenever a foreign body is left in the tissues and is continuous with the outside world. I would therefore suggest that, in those cases in which marked and obstinate edema of the lower extremities and genitalia indicates mechanical removal of fluid from the lower extremities, acupuncture may be tried before resorting to Southey's tubes, or if Southey's tubes are not readily available. It would seem that the main advantage of Southey's tubes, after all, perhaps lies in the ability to collect and accurately measure the fluid obtained and the avoiding of soaking the bed and dressings. But if careful aseptic precautions are taken and bulky dressings used, acupuncture can be carried out, making use of an 18-gage needle, making perhaps six or more punctures in either extremity. Owing to the roundness of the puncture wound and the outflow of edema, these may remain open for days and large volumes of fluid can be obtained in this way. The use of deep incisions into the edematous lower extremity is objectionable because of the great probability of secondary infection.

Dr. Arthur C. Morgan, Philadelphia: In a teaching experience of more than thirty years, I have been continuously using Southey's tubes. I should like to call attention to one or two points in respect to Southey's tubes. The tube itself should be made of silver and not of aluminum. Silver has chemotactic power in repelling invasion of micro-organisms. It is perfectly safe to introduce these needles or the cannulas into the edematous tissue, allowing the needles to remain for several days without infection occurring from them. Sometimes, however, because of the devitalized condition of the tissues, a cellulitis, rather than erysipelas, may develop, and this can easily be controlled by removing the needles and then treating in an aseptic manner the local sore that is present. The stem of the needle itself must be well made so that it will not bend or break. Having many perforations in the cannula instead of one in the distal end is important. Usually eight are found in all instruments now on the market. That permits drainage by capillary oozing and seeping to the external surface. Instead of using the rubber tubing, I wrap ordinary gauze bandages around the leg and put a piece of oil cloth down on the floor, or a rubber mat on the bed, and then an old blanket to absorb the fluid. With these patients sitting in a chair, with the feet dependent, all I do is to get a child's bathtub, have the blanket put inside and let them drain. I have seen gallons come out in that way. I have seen edema of the hands likewise much benefited because of the insertion of the needles in the legs. The advantage of the Southey tube is that the kidneys or the bowels do not have to remove the extraneous fluid. Digitalis or any other blood pressure raising drug is not needed to carry off this extraneous fluid. I would emphasize that this will not apply to the relief of edematous tissue from inflammation. It must be hydrostatic fluid.

Dr. Edward F. Bland, Boston: We have felt that these tubes have a distinct advantage over the usual methods; namely, that the patient is able to lie in bed with relative comfort without being inundated by the fluid necessarily drained into the bed from other methods of attack. The ease with which infection may occur is greatly lessened since the capillary flow is constantly away from the point at which the needles are inserted. A slight infection occurred in one case, a patient who was irrational, difficult to manage, and treated outside the hospital. In this case the tubes came out on several occasions and were replaced by the attendant. In none of our other cases have we had a case of infection. In the series of 100 cases reported by De Stéfano treated in this manner in only one was there a slight superficial infection.

Lavoisier.—The modern era of the science of nutrition was opened by Lavoisier in 1780. He was the first to apply the balance and the thermometer to the investigation of the phenomena of life, and he declared "La vie est une fonction chimique." The work of today is but the continuation of that done a century and more ago. Lavoisier and Laplace made experiments on animal heat and respiration. The great German chemist Liebig received his early training in Paris, residing there in 1822. Liebig's conception of the processes of nutrition fired the genius of Voit to the painstaking researches which laid the foundation of his Munich school. These have been repeated and extended by his pupils, of whom Rubner is chief, and by others the world over. Thus the knowledge often transmitted personally from the master to the pupil, to be in turn elaborated, had its seed in the intellect of Lavoisier. It was he who first discovered the true importance of oxygen gas, to which he gave its present name. He declared that life processes were those of oxidation, with the resulting elimination of heat. He believed that oxygen was the cause of decomposition of a fluid brought to the lungs, and that hydrogen and carbon were produced in this fluid and then united with oxygen to form water and carbon dioxide.—Lusk, Graham: Elements of the Science of Nutrition, Philadelphia, W. B. Saunders Company, 1928.

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[11] DeStéfano, J.: Drainage of Edema, Semana méd. 1: 101, 1923.

INTRACAPSULAR FRACTURES OF THE NECK OF THE FEMUR *

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Inherently we, as traumatic surgeons, recognize that in the management of intracapsular fractures of the neck of the femur we are circumstanced by two major problems not encountered in any other fracture: the age incidence and the structural incidence.

First, the age incidence, because the vast majority of patients are in or beyond the fifth decade. Shaft fractures of the upper extremities and some of the lower extremities in this age group do not dismay us, because the enforced recumbency is less absolute and less prolonged. We long have recognized the need for early mobilization in all types of fractures, especially in the articular group. Yet, despite this clinical edict, we have continued to immobilize hip fractures, thus disregarding the lessons learned and practiced in other joint fractures. Further, in hip fractures, as in no others, immobilization induces local and general stasis in the joint with the poorest local circulation and in the person with the poorest general circulation.

Second, the structural incidence, for in many of these cases, utter failure to repair is noted because of absorption of the narrow part of the neck. There is in this area a quadrilateral segment which seems to resist bone regeneration even though the original reduction has been entirely adequate, the splintage efficient and the after-care exacting.

Many explanations are offered for this distressing failure, often inexplicable in view of the early promise of recovery. None of these explanations are wholly satisfactory, and again we are reminded that the traumas, like pathologic processes elsewhere, can be listed in three prognostic groups:

A. Recovery without definitive treatment.
B. Recovery with definitive treatment.
C. *Failure with or without definitive treatment.*

The first of these get well no matter what is done; the second get well depending on what is done; the third do not get well whatever is done.

My belief is that many in this neck of the femur group fall into the third or failure class, and the contrast between them and the base of the neck group is so striking that clinically the latter can be regarded as high fractures of the shaft with a corresponding prognosis. There is probably no fracture in which failure is more frequent than in this zone, and surely there is no other fracture so surrounded by pessimism even from the days of Hippocrates. For a long time union of any sort was denied; then fibrous union was admitted, and now the accepted view is that bony union is obtained often enough to warrant the attempt. It must always be remembered, however, that our present attitude of optimism must accord with the physique of the patient and the physics of the lesion. We are dealing usually with poor material systemically and locally, and hence guard the prognosis.

REASONS FOR FAILURE

The structural incidence has been mentioned. We are told that this quadrilateral area ("calcar femorale") is cancellous and we remind ourselves that similar bone elsewhere repairs feebly. Witness the os calcis, the body of the vertebra, the lower end of the radius.

The blood supply of the femoral neck is easily compromised by the fracture in question, and when thus affected there is the unusual situation of a small section of bone robbed of vitality, contained in a vacuum, bathed in a mixture of blood, serum and synovia, at body temperature. Under the circumstances, is it any wonder that this fragmented cancellous bone literally stews in its own juice, digests and then absorbs? This virtually resembles an attempt to perform a spontaneous reconstruction operation by bringing the outer section of the neck against the head of the bone.

It is said also that the nutrient vessels of the neck of this bone are atheromatous or become readily plugged and thus ischemia and ultimate local death ensue. We know that this occurs in other areas when reduction is adequate, as, for example, in the lower third of the tibia, a zone which in my experience ranks first as to nonunion. It is said also that calcium or phosphorus deficiency is a factor. I have not found it so in this or any other fracture.

Endocrine disturbance, the presence of other diseases and general inanition are factors of no proved value in explaining why in the one case union occurs and in another no union.

To me the basic factor of nonunion in any fracture is failure of coaptation due to interposition of soft or hard parts. In other words, there is a group that starts with a spontaneous arthroplasty because of the interposition of tissues incidental to the fracture itself or the management of it. A skin wound fails of primary union unless coaptation is adequate, and I am quite sure that a bone wound (a fracture) acts likewise.

As explanatory, then, of nonunion in this hip group, it may be said that we are dealing with an area of known poor repute in which fragments of bone and perhaps frayed capsule and iliopsoas are acting as interposition factors. Certain it is that there must be some determining elements in some of these fractures to cause nonunion, the absence of which means union.

If, then, we agree in believing that every fracture of this sort is a potential hazard, it is the part of prudence to adapt our therapy accordingly.

THE TREATMENT

Hip cases may be divided clinically into three grades of physique: the A or good grade, B the fair grade, and C the poor grade. This accords with the classification in other traumapathies wherein an attempt is made to repair in terms of the kind of material that there is to work with. Obviously an arteriosclerotic patient of 70 is not a good surgical risk from any standpoint; but the fallacy of gaging by the calendar rather than by the condition is well known. A case in point is an intracapsular fracture in a patient, aged 92, who was a better risk than many others aged 50 or less.

I saw in consultation a type 2 intertrochanteric fracture in a patient, aged 102. The point at issue was the safety of allowing her out of bed, and on her first day of freedom she sat up seven hours.

In passing, let me revert to what I call the "wren" type of patient, who will easily be recognized. Usually it is grandmother, aged about three score and ten, and she is a blessing in any family and to any family physician or any family surgeon. She never weighed more than 110 pounds in her life. She has not been in bed a day since her last child was born thirty-five years ago. She hops, chirrups, cavorts all over the place and has been in at the birth and sickness of all the grandchildren and is still the dynamo; she is rarely still. Every physician has one or more in his practice and would not exchange her as a prospect for three of the flapper age who lead the sheltered life of the poorly reacting, noncooperating, pampered individual. To consign this type of patient to the aged class because of her calendar age is to consign oneself to the dotage in intelligence.

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* Read before the Section on Orthopedic Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

In this day of x-rays, failure to make the diagnosis occurs less often, and even without the films every hip injury is recognized as a fracture if there is rigidity in Scarpa's triangle and if there is inability to lift the heel off the bed with the knee straight.

Formerly, some competent surgeons assigned the class C patients to semirecumbency; the limb was kept in position by sandbags, the heart, kidneys and lungs were watched, and the patient was virtually consigned to the inevitable.

In the A group and in some of the B group the plaster-of-paris abduction cast was regarded as the elective treatment, a method so adequately stressed by Royal Whitman and numerous followers. I have long objected to this form of treatment as a routine because the patient was not a good subject for the act of reduction (with or without anesthesia) or for the process of retention. There were many of my patients in whom this plaster-of-paris appliance became not only immobilization but also immolation; others, notably the wren type, who resented it enough to rebel and get a good physician; others, so fat and bulky that the appliance was unbearable supercargo; others who were impeded so much that respiration became embarrassed despite frequent change of position, and others in whom bed sores developed even when expected and guarded against. Finally, it never appealed to me as rational to immobilize this joint fracture wholly when I mobilized every other joint fracture, especially in view of the bad repair reputation of this articulation.

Like every one else, I have had good results and poor results with this plaster-of-paris treatment. The fact is that, despite perfect reduction and perfect retention, this spica treatment is no guaranty of success in and of itself. Recently, in consultation, I saw such a case in a 19 year old student of sturdy physique.

Accordingly, I have abandoned this early immobilization method in nearly all cases and now resort to traction until union is attained, and I then allow the patient to become ambulatory in walking calipers or a plaster spica.

There is nothing new in this procedure, and as long ago as 1872 Maxwell advocated what in effect is the same treatmnt. Ruth says he was taught this method by Maxwell and hence arose what has become known as the Maxwell-Ruth method. Ruth in 1921 presented this procedure before this very section at the Boston session under the title "Fractures of the Femoral Neck and Trochanters: A Rational Treatment." In a well considered article he refers to the procedure as the "anatomic method," stressing such factors as the early reduction attained by flexing the thigh and then maintaining the corrected position by vertical traction along the entire limb, and lateral traction to control the upper fragment. He asserts that union is obtained in about four weeks, and thereafter the patient is ambulatory on crutches or in a brace for a period of from "four to ten months." He says that unaided walking is possible in trochanteric fractures in six months, in eight months in extracapsular fractures, in twelve months in intracapsular fractures.

As stated, the Maxwell-Ruth method is to obtain vertical traction by attaching adhesive plaster along the entire lower limb from the ankle to the midthigh. A part of the technic is to mobilize the knee manually at frequent intervals so that a stiff knee may not compromise an otherwise satisfactory result. I modify this part of the process by placing the adhesive plaster on the thigh only, mobilizing the knee by motion obtained through an attachment on the sole or about the ankle.

In this fracture, as in all others, I have long attempted to classify or type the cases in terms of the displacement or nondisplacement of the fragments. Type 1 in any fracture is that group in which the fragments are separated or overlapped; type 2 is that group in which the fragments are in contact and not overlapped. There is as much difference in the management and potential results between type 1 and type 2 as there is between a simple benign catarrhal appendix and a malign ruptured appendix.

Of 100 consecutive cases of fracture of the femur recently reported[1] from my service, 14 per cent were in the hip, the age range varying between 41 and 92 years.

TRACTION METHOD

1. Both knees are flexed to from 150 to 165 degrees. This is best provided by a bed of the Gatch type, which allows the patient to assume a semiseated position with the knees bent to the desired extent.
2. Moleskin adhesive plaster is applied as high as the groin on the inside and to the crest of the ilium on the outside. This encircles the limb except for a spacing of a few inches on the anterior and posterior surfaces. It is held by spiral strips of zinc oxide adhesive plaster and a gauze or muslin bandage into which adhesive plaster is intertwined to prevent slipping.
3. The two lateral straps of adhesive plaster extend three or more inches below the femoral condyles and a spreader is then attached to them.
4. To the spreader a cord is fastened, and this in turn leads to a pulley at the foot of the bed or to the overbed frame of the Balkan type.
5. The limb is widely abducted and internally rotated manually, or that position is attained by the traction. As a guide, a cross is marked on the middle of the patella and the patient and attendants are cautioned to keep this marker pointing straight upward.
6. A weight of from 15 to 30 pounds is attached to the cords and the foot of the bed is elevated on blocks ten or more inches.
7. Adhesive plaster is applied to the sole and to this is attached a cord to permit knee flexion.
8. Lateral traction, if required, is obtained by adhesive plaster passed around the limb as close to the groin as possible. To prevent cutting into the skin, a strip of felt or padded binder board (Ruth) is placed next to the skin, and over this the encircling adhesive plaster is fastened. A spreader is attached to the adhesive plaster and this in turn leads to a cord and weights hung to an upright at the side of the bed opposite the great trochanter. The fracture side of the bed is elevated also if additional traction is needed. The weight is usually one-third that employed in the vertical traction.

If it is impossible to provide adequate home or hospital care, it may be permissible in the "wren" type of patient to apply the plaster-or-paris sitting-in-a-chair cast. To do this a kitchen chair is used, the back and one leg of which is padded; a hole is cut in the seat and then it also is padded. The patient is thus fastened in plaster to the back, seat and leg of the chair. Hence knee and hip flexion is provided, abduction is adequate, and, if wheels or casters are added, this light weight patient becomes self-ambulatory.

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[1] Goldblatt, David: Ann. Surg. 91:739 (May) 1930.

At night the patient and the chair are placed in bed and thus, virtually, an inclined plane position is constantly maintained.

DURATION OF TRACTION

Within from forty-eight to seventy-two hours, reduction is usually accomplished as indicated by the position and by roentgenograms.

The weights may be gradually reduced after four weeks and usually are removed for a test after from six to eight weeks.

Weights are discarded if: (*a*) the limb does not rotate; (*b*) pushing up or pulling down on the leg gives identical roentgenograms; (*c*) the weights can be pulled up, or the limb can be lifted off the bed by the patient. A period of one week is now allowed with no support except a long sandbag on the outside of the lower thigh. Thereafter, the patient is fitted with walking calipers and a pelvic band. Soon this is discarded at night and later trial trips for weight bearing are permitted. When there is no prolonged reaction in terms of pain, swelling or local heat, the apparatus is wholly discarded. In others at this stage, a plaster spica may be substituted.

On an average the patient is in bed from ten to twelve weeks and up and about on calipers from six to twelve weeks. Thus the disability period approximates from four to six months.

Naturally a patient of heavy build is less early given freedom than a person of light build, and if the roentgen check-up is unsatisfactory, the weight bearing period is postponed.

From the first, the patient is urged to shrug the kneecap and otherwise contract the quadriceps. When available, massage of the limb is provided, and later certain "setting up" exercises for the extremity are prescribed. In other words, physical therapy is made a coincidental and not a retroactive element in treatment.

RESULTS

Disability and deformity to some extent is the usual outcome. However, there are many instances of fair function in the presence of fibrous union and extensive absorption.

In the group in which disability is extreme, the propriety of open operation will depend on the general physique of the patient.

Reconstructive operations are reserved for that group in which absorption leads to nonunion, or deformity is great enough to prove disabling.

ADVANTAGES AND DISADVANTAGES

1. This fracture is placed in the group in which inspection and mobilization are provided after the manner of other joint fractures. The disadvantage is stated to be that this fracture demands immobilization for success; with this statement I do not agree.

2. The general condition and nursing care of the patients are enhanced by the freedom thus provided. The claimed disadvantage is that too much freedom is thus provided.

3. There is no apparatus to impair the local or general circulation; the patient may assume a semiseated position: decubitus can be avoided. On the contrary, it is asserted that a properly applied abduction casing of plaster of paris provides equal security against identical complications. With that view my experience does not correspond.

4. This method affords ample opportunity for inspection and coincident physical therapy. Per contra, it is urged that inspection and physical therapy are not needed in this type of fracture. From that view I also dissent.

CONCLUSIONS

1. Fracture of the inner part of the femoral neck is potentially a hazard because of the anatomic conditions and the tendency toward spontaneous absorption despite adequate replacement and retention.

2. The age incidence adds to the hazard because patients at 60 years or beyond are usually poor surgical risks for any procedure requiring recumbency.

3. Adhesive plaster traction provides adequate replacement and retention without anesthesia and the burden of absolute immobilization represented by the plaster-of-paris spica.

4. Treatment that permits constant inspection, mobility and freedom from local and general stasis accords with the principles found applicable to articular fractures elsewhere.

5. Operative treatment for early cases is usually unwise because of the anatomic and age factors mentioned.

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ABSTRACT OF DISCUSSION

Dr. Charles L. Scudder, Boston: Fractures of the neck of the femur are always intracapsular. Until Royal Whitman suggested as treatment of a fracture of the neck of the femur reposition of the fracture fragments with firm contact and immobilization, the treatment of this fracture could be described as chaotic. Whitman's method has been employed properly and improperly throughout this country. It has not been used abroad generally. There are almost no end-results adequately observed of the Whitman treatment today. In general, the method has not been attended by ideal results. Good function results in from 55 to 60 per cent of the cases. Because of the uncertainty of securing good results, men all over the world have been using different methods of treatment tentatively. There have been many operative procedures with bone grafts, plates and nails, and the method by traction alone and early mobilization. The facts presented by Phemister and Speed with regard to the changes taking place in the head of the femur and in the fractured neck months and years after the injury must be reckoned with in any study of the efficiency of any method of treatment. An interval of several years (from three to five) must elapse before one can get the real end-result of the treatment of the fracture of the neck of the femur. It is possible that opening up the capsule at the seat of fracture, replacing the fragments, grafting muscle to the neck, and leaving the wound open for granulation tissue to enter from an extracapsular source, to bring blood vessels and granulation tissue there, may be helpful. Clay Ray Murray of New York is at work on this problem, and, I believe, is on the right track. Dr. Moorhead believes in the Maxwell Roth method. If he can succeed in correcting and replacing the fragment as the Whitman position does it, that is one thing; but he has not given the results of that treatment. If he can better it and go above the 40 or 50 per cent, there may be something in it, but I doubt very much if the method advocated by Dr. Moorhead will give such results as are obtained by the Whitman method. Operative procedures are merely incidents in the progress of the treatment of fracture of the neck. Smith-Petersen, in Boston, is conducting an experiment with a group of older people. He inserts a steel nail, specially constructed. The fracture is impacted after the nail is in place. His patients have little or no shock or pain, are gotten up on crutches at an early date and bear weight early.

Dr. Kellogg Speed, Chicago: The fate of Dr. Moorhead's stewed bone appealed to me very much. I found it hard to reconcile the picture of this 70-year-old flapper with the stewed bone. I likewise wondered how this dynamic person would be able to electrify the head of the femur which had undergone aseptic necrosis and some of the late symptoms which are often misinterpreted for nonunion of the fracture of the neck of the femur. Sometimes the neck of the femur unites and yet the head later disintegrates and is in a state of aseptic necrosis. A creeping substitution of bone in the head may follow from circulation arriving by the round ligament and the other sources of blood supply to the head; union then occurs, but when the head dies it breaks down, flattens and secondary symptoms follow. Those phenomena are not real nonunion; they are secondary things dependent on certain disturbances, usually unguarded weight bearing as far as any one knows. Possibly this dynamic flapper may electrify this dead bone and cause it to revive—I don't know; but whether the nonunion is true or whether it is delayed change is something yet to be studied and worked out in a careful analysis of cases followed for one, two or five years with roentgen examination.

Dr. Armitage Whitman, New York: I can do no better than to reiterate the conclusion of Dr. Scudder's discussion, that until something better has been devised, the abduction treatment is the method of preference. There are one or two other points of interest. One is the complete difference of opinion that depends on the tools with which one person or another is familiar. There are two schools of thought—that of one who is an expert with plaster, and that of one who is not. It is on that difference that most of the discussion of treatment of fracture of the neck of the femur rests. Sir Astley Cooper spoke of three fractures which did not unite by bone: fracture of the olecranon, of the patella, and of the neck of the femur. I think it can now be agreed that their union depends simply on their efficient treatment. The position of abduction, hyperextension and slight internal rotation is the only one in which the bones are given the opportunity for repair. Given prolonged and efficient immobilization in that attitude and they will unite, even after almost complete absorption of the neck. Dr. Moorhead spoke of his grandmother, immolated in plaster of paris—a statement correctly reflecting the feeling of the average practitioner and the average nurse. To me, plaster means exactly the reverse. The moment the fracture is reduced and the plaster applied, the patient is relieved of pain. He may be, and must be, turned in bed. He may be set up on the side of the bed. He may be taken home and cared for by absolutely untrained attendants, representing a considerable economic saving. Most important of all, Dr. Moorhead's grandmother would have died not only of pain, bed sores and filth, but chiefly of depression induced by the tradition that fracture of the hip in the aged is a terminal injury. When I have his grandmother in plaster, able to turn without discomfort, to sit up, to go out, even to be sent from San Francisco to New York, the psychologic effect is of incalculable importance. I know of no treatment that is 100 per cent effective, but I must emphasize that in proper hands, given a person who knows how to apply plaster of paris, the abduction treatment with the plaster-of-paris spica is not only the best treatment for the fracture but also the best treatment for the patient.

Dr. John J. Moorhead, New York: Without attempting to show the five or six slides which emphasize what I tried to say, I will say that by a process of traction and suspension an attempt was made to produce the position of abduction and to go through the first phase of treatment of any fracture and reduction and maintain it by a nonimmobilizing form of apparatus and apply some form of ambulatory treatment. I should like to emphasize this: All know the greatest difficulty in getting union in this type of case and the embarrassment felt in having a case presumably going on to a very nice state of repair and suddenly it goes over, and under the best possible statistics. Dr. Scudder says that from 45 to 50 per cent of these patients do get satisfactory results, and it occurred to me if that was the best that could be done by outsiders and my results were no better than that, it might be worth while to treat a series of patients by traction and suspension, which was the method giving such excellent results in other types of fracture, and that was the purpose in calling attention to this.

PLASTIC REPAIR OF INGUINAL HERNIA *

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In the majority of herniorrhaphies, either direct or indirect, the chief complicating factor confronting a firm and secure closure is the necessity of making an adequate provision for the transmission of the structures of the spermatic cord. It is on this account that the closure of an inguinal hernial opening in the female is a simpler and surer procedure.

The Bassini operation, though adequate in a large number of cases, is in reality no more than the removal of the enlargement of a congenital sac and resuture of the structures, plus a floor construction of muscle tissue that is not firm and the conjoined tendon that must be under unsafe tension. It presents the disadvantage of leaving the opening directly through the aponeurosis, which is the fundamental tissue support, ranking next to bone in this respect, thus leaving a postoperative *"weak spot" in a vulnerable portion of the aponeurosis.*

With these points in mind, I worked out a technic years ago employing the principles of plastic surgery which I believe is applicable to the majority of surgical procedures for the repair of inguinal hernias, whether direct or indirect, securing the integrity of the cord in a new formed canal and at the same time enabling as secure a plastic repair of the defect in the male as in the female.

About the time this technic was brought out Skillern presented a plastic flap technic lacking in the essential advantages presented by mine. About five years ago Roberts presented a plastic repair along different lines but having advantages over the old Bassini procedure.

Muscle fibers per se are inadequate to resisting strain. Fascia may be considered as flexible bone, being made *up of similar mesoblastic structure minus the lime salts.* Just as the fascia holds in position the groups of muscles moving the long bones of the body, so does the fascia of the abdominal cavity hold its structures within it. These facts are fundamental and should be borne in mind in the consideration of herniorrhaphy. The successful suture of a postoperative hernia is enhanced by an overlapping or plication of the strong fascia, and the employment of this principle has made the Mayo umbilical hernia technic a standard procedure for years. The same principle applies to the inguinal hernias, and if the principles are correctly carried out the successful result is practically as sure as in the repair of the umbilical hernia.

The weakest point is the lower extremity of the inguinal canal from Hesselbach's triangle down to the pubic spine. To bring the spermatic cord out of the *abdominal cavity at this point interferes with a firm* repair in the most vulnerable area for recurrence. It is on this acount that the technic presented is advantageous. The opening for the cord is removed from the weakest point and at the same time the vulnerable area is covered with a double fascial layer beneath which the conjoined tendon and muscle may also be attached to the contiguous inner aspect of Poupart's ligament for additional reinforcement.

The marginal suture does not insure the security as does the plication of fascia. This is especially true in the lower extremity of the external oblique aponeurosis, which is sometimes attenuated or presents the appearance of thickened bands loosely bound together. While the *marginal suture line may not give way in such a* case, subsequent strain may separate the fascia above or below the suture line. Such a separation already exists at one point in order to permit the exit of the spermatic cord.

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* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

Plication, as extensive as the local conditions and structures present may permit, enhances the permanence of a closure as no other suture can. It is far superior to depending entirely on suture of deeper and less firm structures of the muscle or depending on the suture of the conjoined tendon to the lower end of Poupart's ligament, which must necessarily be under a more or less hazardous tension. Soft structures such as muscles or firmer structures sutured under tension are not dependable. By removing the cord from this insecure area and plicating the medial flap of the external oblique aponeurosis beneath the lateral flap, a double aponeurotic layer is placed as a covering over this vulnerable spot, and no opening is left at this point. Beneath the flaps of the aponeurosis Poupart's ligament may be sutured to the conjoined tendon and the triangular fascia, down to and on the pubic spine as the size of the flaps warrant, as additional support. The cord is placed as far toward the upper end of the incision in the aponeurosis as the anatomic environments warrant, beginning at the internal ring, and is brought out through a new canal between the two layers of the aponeurosis. The direction of the cord in its new canal is medial and slightly upward. The plication is then continued beyond the new canal externally. This plication is secured with two rows of continuous sutures, with or without a few intermediate sutures. The exact method of placing these sutures should be governed by the anatomic materials available in the immediate case. As the cord emerges from the internal ring, it is not angulated but bends loosely, medially and slightly upward, resting on a soft muscle pad.

Emerging from the upper suture line, which may be termed the new external ring, it loosely takes a downward medial course. I never experience any difficulty on account of the slightly greater cord length required, because a greater length can be readily secured by loosening the surrounding tissues down toward the scrotum. It has been my experience that, if the testicle is temporarily held higher by this procedure, it gradually gravitates to a relatively normal suspension point. The embryologic ability for elongation and descent may not be entirely lost in adults.

Prior to the plication, as just described, of the external oblique aponeurosis, a preliminary deep suture of the conjoined tendon and fascia of the internal oblique may be made to Poupart's ligament, thus adding a third layer of firmness to the new-formed wall. This last reinforcement is the only added support which the Bassini adds to a simple fascia resuture, and there it must even be placed in a less advantageous position than is possible in the technic advocated in this paper.

It is advantageous to make the lower flap of the aponeurosis as long as possible. This is facilitated by a high splitting incision from the external ring. If the splitting is started at the medial aspect of the ring instead of at the highest point, a maximum length may be obtained and when the suture is completed all evidence of the former external ring is entirely effaced.

I find three distinct disadvantages in the Skillern operation, in which the lower or lateral flap is plicated beneath the upper or *medial flap: (1) It is not possible to make so extensive a plication; (2) it is not possible* to construct a new fascial canal for the structures of the cord without producing an additional curve having a sharp and disadvantageous angulation, and (3) the general reconstruction is anatomically incorrect.

The new canal for the cord as constructed in this technic is between the two layers of the aponeurosis at *a right angle to the direction of its fibers; therefore* strain and tension compress the canal and inhibit the possible formation of a new hernial protrusion. Such a compression has never, in my experience, produced any untoward effect on the vascular structures of the cord.

The new internal ring made by suture of the border of the upper flap low down on Poupart's ligaments *beneath the lower flap (following suture of internal muscle and conjoined tendon) is identical with the old* internal ring and the point of beginning of the new fascial canal. This point of angulation is not acute and the cord bends over a soft muscle pad. Furthermore, as the cord emerges from the new external ring, higher and medially, the bend is neither sharp nor disadvantageous.

The *technic as advocated, with the plication of the* lower or lateral flap over the upper or medial, presents advantages: (1) the broadest plication for insurance of permanence of closure; (2) the elimination of any sharp angulation of the cord which might be detrimental to its functional integrity, and (3) a new inguinal canal between fascial layers, which is compressed by strain or tension, thus mitigating the possibility of a recurrence of a *hernia.*

There is a diversity of opinion regarding the type of suture for herniotomies. Many have faith in the security of interrupted sutures individually tied. Here again may be gained a lesson from the general principles of plastic surgery; namely, the fewer buried knots the better, because of (1) the slowness of knot absorption with the possible danger of sloughing out, and (2) the *possible danger of constriction from tight tying.* The running suture, when accurately placed, favors ready absorption and is adequate to hold for the length of time that is required for fascial cohesion. The running stitch is not likely to produce the constriction that a single tie may.

Double chromic catgut of not too heavy a size will endure much longer than necessary for fibrous tissue cohesion, and with its use the number of knots needed is reduced to a *minimum. I apply the running* suture in such a way as not to cross the new fascial canal; thus there is no pressure from the sutures on the structures of the cord. The flaps are sewed separately above and below the canal and all sutures are tied separately on either side of the new canal.

By making a curved skin and fatty layer suture with a convexity upward some little distance above Poupart's ligament and reflecting the skin flap downward, the skin incision can be more securely dressed after operation, thus minimizing danger of subsequent contamination. A deep suture of the superficial fascia and fatty layer eliminates dead spaces and makes a soft cushion over the cord, as it lies on the outer surface of the external oblique aponeurosis.

The fascia, as bone, unites readily if all intervening tissues are removed, permitting actual *contact of like* structures. It is essential to remove *the aveolar tissue* and fat particles thoroughly from the coaptating flap surfaces in order to secure a prompt and firm cohesion.

CONCLUSIONS

1. Better results may be expected if the fine principles of plastic surgery are applied to herniorrhaphies.
2. Fascia is the dependable tissue in a herniorrhaphy. Marginal suturing does not prevent a tendency of attenuated fascia to split. On the other hand, complete plication gives a greater coaptating surface and gives a double fascial covering.
3. The construction of the new canal minimizes, if not nullifies, the possibility of another peritoneal protrusion.
4. The direction of the new canal does not create any sharp angulation of the cord, produces no constriction, and permits the greatest degree of overlapping or plication of the flaps.
5. Careful construction and suturing of the flaps gives a maximum amount of "double layer fascia."
6. A careful cleansing of the coaptated fascial surfaces favors a prompt cohesion and avoids what might be termed a "fascial pseudoarthrosis."
7. Fixed routine should not be carried out in every case. Existing environments and available anatomic material should govern details of technic.
8. I believe that my technic eliminates the postoperative "weak spot" as well as lessening other insecurities of repair by the ordinary technic and makes the male herniorrhaphy practically as sure as in the female and almost as certain as the plicated umbilical.

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ABSTRACT OF DISCUSSION

Dr. Henry J. Vanden Berg, Grand Rapids, Mich.: Dr. Pettit's operation is a good one; I have used practically the same method for a number of years. It is particularly useful in the direct hernia. The operation should be as simple as possible. In many cases, removal of the sac, if it is done completely, is all that is necessary. In order to do that, the best way is to close it from within, open the sac so that one can see exactly what one is doing, and put in the suture from the inside where it belongs. All are aware how effective the treatment of a femoral hernia is if it is done from within. In a child, that is sufficient in most cases; it is also in many adults in the simple cases. An important matter in the treatment of hernias is doing it in a painstaking way, doing everything carefully, tying knots securely. Too heavy sutures should not be used; the tissues should not be strangulated. The operation should be a work of art, done well and nicely. It does not matter so much what method is used. The same method cannot be used in every case; one has to use one's judgment about that. But it is important that one does it well. If it is so done, there will be few recurrences. Of course, there always will be recurrences, because tissues are being treated that do not heal well, and other things may happen; but if pains are taken it will help a great deal if there is no infection. Infections cause a certain amount of recurrences. Particular care must be taken with asepsis. Hematomas may produce a recurrence, so pains must be taken with hemostasis, especially with the little veins that are not thought much of; they may bleed later and spoil a good piece of work. Patients should not get up too early. They should be in bed for twelve or fourteen days or longer with old people whose tissues are not well nourished and do not heal readily. Then patients should be advised when they leave the hospital about not getting back to work too soon or putting any undue strain on the parts too early. They should be cautious, for from three to four months at least, and somewhat so for six months. Patients should be cautioned in winter against slipping on the ice or getting a sudden strain.

JUVENILE DEMENTIA PARALYTICA

A STUDY OF FORTY CASES *

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Any disease of which there have been more than 500 reported cases cannot be regarded as rare, and yet the incidence of juvenile dementia paralytica is probably under 1 per cent of all cases of dementia paralytica and under 2 per cent of all cases of congenital syphilis.

The original description of the condition is credited to Clouston,[1] who in 1877 described a boy of 16 who developed a clinical picture resembling in its essential features the adult form of dementia paralytica. It is now known, however, that this is true only when the disease appears in adolescence, whereas the majority of cases appear much earlier. The cases in the literature, for the most part, have been reported as single case reports or in groups of two or three. The only larger groups are those of Mott[2] (1899), 12 cases; Schlicht[3] (1915), 14 cases; Schmidt-Kraepelin[4] (1920), 40 cases, and Klauder and Solomon[5] (1923), 23 cases. Several writers have collected cases from the literature: Alzheimer[6] (1895), 41 cases; Thiry[7] (1898), 69 cases; Fröhlich[8] (1899), 47 cases; Hirschl[9] (1901), 20 cases; Wollburg[10] (1906), 33 cases; Fairbanks[11] (1908), 38 cases; Dahl[12] (1909), 71 cases, and Huguet[13] (1913), 7 new cases.

The present series includes forty cases, heretofore not reported, most of which have been personally examined by me. I am indebted to Dr. William A. White for the privilege of studying twenty-five of these cases at St. Elizabeth's Hospital, Washington, D. C., to Dr. Floyd Haviland for the study of eleven cases at the Manhattan State Hospital, and to Dr. A. L. Skoog for one case.

SUMMARY OF CASES

Sex.—The series includes fifteen males and twenty-five females, or a ratio of 1 to 1.6. This figure is in about the same proportion as that reported in other series and shows a marked contrast to the incidence of dementia paralytica in the adult, in which the ratio is approximately one female to four males.

Age at Onset.—There are several cases reported in the literature in which the onset is said to have occurred in the third year; this was so in one case in this series. This, however, is generally regarded as exceptional, the usual age of onset being between the tenth and fifteenth years.

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* Read before the Section on Nervous and Mental Diseases at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

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In the present series, there are seven cases in which the break was so gradual that no definite age of onset can be given and in every instance the child was feebleminded and very questionably ever regarded as "normal." There are an additional five cases that certainly must date from birth. On the other hand, there were six cases in which the children seemed normal and presented their first symptoms of dementia paralytica between 9 and 11 years, and twelve patients developing their symptoms between 13 and 17 years.

There are, then, these two very distinct types of onset: the vague and indefinite development of the disease in a mentally and often physically inferior child which may be apparent at birth or soon afterward; second, a more or less acute break, after some years of normal development of the child. In a later stage of the disease, these two groups are indistinguishable clinically and at any stage they are identical serologically.

In settling this question, the problem is made more difficult because, although inferior from birth, the type of case with vague onset is rarely diagnosed as juvenile dementia paralytica much earlier than the other type of case. This may be due in part to the rather low intelligence of the parents in the economic class from which most of the patients come, and in part to the optimism and disregard for comparisons evidenced by the parents of most hypophrenic children.

It must also be recognized that, even though feebleminded, these children disintegrate psychically to even a vegetative level and may exist at such for long periods. This might theoretically be explained in some instances if it is conceded that the progression of the infection is slow. In such instances the child's mental development is more rapid than the destruction by the infection, so that for a time he develops in spite of the presence of the neurosyphilis. It seems incorrect in such cases and certainly impossible to give any definite age as the age of onset, and more correct to regard the onset as at birth.

Duration.—The duration is variously given as from two to ten years, averaging perhaps four years, and usually regarded as being longer than in the adult form of the disease.

Here, again, the duration depends entirely on what is considered to be the age of onset, and in those cases in which it seems to have been present at birth cases may often be found lasting fifteen and even twenty years after the first symptoms.

In the cases in which development has been normal, several of the present cases have lasted more than ten years. In one case at the Manhattan State Hospital, about which there has never been any doubt as to the diagnosis of dementia paralytica and little doubt as to the hereditary quality, the patient was admitted in 1913 when 17 years of age and is still among those present at the age of 34. One patient in this study died thirteen years after the supposed onset, and two patients died after eleven years.

Family History.—Some of the best evidences for a neurotropic strain of spirochetes can be marshaled from a study of the antecedents of young patients with dementia paralytica. In this series, as in many others, a comparatively large proportion (25 per cent of the cases) of the parents have symptomatic neurosyphilis. Of these forty patients, three of the fathers and six of the mothers had dementia paralytica and in one instance both parents had the disease.

In addition, seventeen other patients had one or both parents who were actively syphilitic, three more who were probably syphilitic, and in three additional cases other siblings had syphilis. In one remarkable case the grandparents are all said to have had syphilis, one grandfather having died of tabes dorsalis, and both parents have syphilis, as does the only other child, a brother who is mentally defective.

Mention should be made that while there is no doubt that most cases of juvenile dementia paralytica are congenital in origin, there is no absolute proof in many cases that a primary infection was not acquired in infancy or early childhood. So far as is known, all the present cases were congenital.

Developmental History.—In twenty-three patients (58.5 per cent) of my group there was a retardation in the mental development. Fourteen of them were feebleminded in a marked degree and an additional nine were retarded. Physically, twelve patients (30 per cent) were retarded in their development. Twenty-five per cent (ten patients) gave a history of having convulsive seizures before a diagnosis of dementia paralytica was made. This, I think, is an important consideration in the study of epilepsy of congenital syphilitic origin. I have recently reported thirty-one cases of so-called idiopathic epilepsy in which there was sufficient evidence to establish a diagnosis of congenital syphilis, in which I associated the convulsive seizures with the syphilis. Thus it is apparent that some cases may have been included that may ultimately become frank cases of juvenile dementia paralytica in which the "epilepsy" was a very early symptom.

TABLE 1.—*Incidence of Neurologic Signs*

	Number of Cases		Number of Cases
Cranial Nerve Lesions			
Optic atrophy	7	Strabismus	5
Pupillary changes:		Nystagmus	4
Argyll Robertson	11*	Facial paresis	2
Fixed	18	Speech defect	29
Sluggish	8	Dysphagia	4
Normal	4	Deafness	1
Inequality	7	Deviation of tongue	6
Motor Signs			
Convulsions	14	Ataxia	15
Hemiplegia	6	Choreiform movements	4
Tremor of tongue	14	Gait disturbance	25
Tremor of face	11	Contractures	4
Tremor of hands	12		
Sensory Disturbances			
Hyperesthesia	1	Headaches	1
Hypesthesia	1		
Reflexes			
Tendon: Exaggerated	33	*Babinski present*	11
Normal	2	Ankle clonus present	11
Diminished	2	Romberg present	8
Absent	3		

(* *One case showed an Argyll Robertson pupil* on the left and a fixed pupil on the right.)

Bunker has called attention to the frequency in juvenile dementia paralytica of the Lorrain type of infantilism; i. e., the underdevelopment of stature but the maintenance of the body proportions. Subjects with this disease often seem to have arrested physical development, although I cannot agree that this is characteristic of most cases.

Neurologic Picture.—There are certain points of difference between the juvenile and the adult forms as regards the neurologic picture. These differences are preponderantly the increase in extent and variety of the organic manifestations of destruction in the juvenile cases. Thus they show more cranial nerve involvement; i. e., optic atrophy, oculomotor palsy, facial paralysis, speech impairment and dysphagia. The juvenile cases show more extensive pupillary changes, complete fixation occurring much oftener than Argyll Robertson pupils. They show convulsions much more frequently and the motor symptoms in general appear earlier in the course of the disease. They show focal signs more frequently as evidenced by hemiplegias, jacksonian attacks, and occasionally cerebellar signs.

It is my belief that these organic changes are more frequent and more pronounced than in the adult because the disease process involves an immature rapidly growing tissue during its development and an early stage of development is recognized as being more susceptible to influence, more vulnerable to an infection, and more easily destroyed than an adult tissue.

The incidence of the various neurologic signs are shown in table 1.

Endocrine Symptoms.—Autopsy studies show that in a small number of juvenile patients with dementia paralytica there is an involvement of the thyroid, pituitary, pancreas or suprarenal glands. Clear-cut clinical pictures of dysfunction of any of these glands are rare. One patient in this series had suggestive signs of hypopituitarism and one other of myxedema; neither were especially pronounced.

Table 2.—*Occurrence of Clinical Stigmas*

	Number of Cases		Number of Cases
Hutchinsonian teeth	6	Facial asymmetry	11
Deformed teeth	14	Cutaneous lesions (at birth)	7
High arched palate	9	Choroiditis	2
Prominent frontal bossae	3	Hydrocephalus	1
Saddle nose	4	Microcephalus	1

On the other hand infantilism, both of systemic development and of the genitalia, is not unusual. Nine cases (12.5 per cent) showed a general bodily infantilism. In the reports of 530 cases of juvenile dementia paralytica that I have reviewed in the literature, 96 cases showed hypogenitalism. In 223 cases of juvenile dementia paralytica in girls, 24 presented an infantilism of general bodily development. Twenty-six patients of this number showed amenorrhea, 7 of whom were over 20 years of age, 13 between 17 and 20 years, and 5 aged 16 years. These figures unquestionably represent a smaller percentage of such cases than actually exist, since many reports failed to include any mention of menstrual history. Furthermore, many patients with juvenile dementia paralytica develop the acute picture of their disease and may even run their entire course long before puberty and, consequently, are not of an age to show clear-cut symptoms indicating ovarian involvement.

Clinical Stigmas of Congenital Syphilis.—Clinical stigmas are not of particular importance in this condition except in exceptional doubtful cases. They may or may not be present. Their frequency of occurrence in this series is indicated in table 2.

Laboratory Diagnosis.—The blood Wassermann reaction was positive in thirty-five cases; in one it was negative and in four cases it was not made. The spinal fluid Wassermann reaction was positive in thirty-five cases; in five cases it was not made. Examination of the spinal fluid revealed from no cells to 260 cells, the majority of cases showing a normal count (10 cells or less). The colloidal gold curve in cases in which it was made showed a typical first zone (paretic) curve in nineteen cases and a second (syphilitic) zone curve in three cases.

The uniformity of positive laboratory observations is deserving of comment. At least in this series, the uniformity may be in part explained by the fact that a positive Wassermann reaction was regarded as an essential diagnostic criterion by the men originally seeing most of these cases. (Dementia paralytica for many has come to be largely a matter of laboratory diagnosis.) We [14] have expressed in our study of congenital syphilitic epilepsy the belief that the Wassermann reaction in the individual may be negative and yet the presence of congenital neurosyphilis may be established without a doubt. Likewise we believe there might be sufficient evidence in a case to establish a diagnosis of juvenile dementia paralytica with negative serologic observations.

The discussion of the laboratory observations in juvenile dementia paralytica confronts one with the much discussed "preparetic" stage of the disease, i. e., that stage in which the clinical picture is not paretic but the spinal fluid changes are typically paretic. Certainly such a stage must occur in most, if not every, case of the juvenile as well as of the adult form. The diagnosis of every case in the present study was agreed on by several other neuropsychiatrists in addition to myself, so that this point has no immediate bearing on this study.

It is conservative to continue to term such cases "preparetic." Apparently not enough such individuals have been followed after having been spotted as preparetic to determine their course. And yet for the most part we tenaciously hang to the more or less essential paretic colloidal gold curve in fully developed cases of dementia paralytica and at the same time give it questionable support in those feebleminded but neurologically normal patients. It might be a fair question to ask when to consider a preparetic child as having juvenile dementia paralytica. Must a pupillary sign be waited for, or a change in the reflexes, or what? Certainly one can judge from some of the histories of full-blown cases of juvenile dementia paralytica occurring in feebleminded individuals (such as several of the present series) that such cases must have had a "preparetic" stage if one is to concede the fairly well established fact that the spinal fluid abnormalities precede for a number of years the clinical evidences of neurosyphilis.

Consequently, it seems to me that one begs the point in labeling such cases "preparetic" instead of giving oneself the credit for having diagnosed a case of dementia paralytica in an early stage.

Mental Symptoms.—The mental picture seems easiest to interpret if the problem is again regarded as one of an overwhelming infection on an immature but rapidly developing brain. When the damage is done early in life, the result is feeblemindedness with breaking down of the perceptual, intellectual, emotional and motor machinery. When the damage is done later, the brain has had at least a start in its development, and arrest and regression are found at various levels, depending on the age. The later the damage occurs, the more nearly does the case resemble the picture of adult dementia paralytica. Regardless of the age at the time of the damage, all cases tend to assume a common clinical picture of simple extreme dementia.

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[14] Menninger, K. A., and Menninger, W. C.: Epilepsy and Congenital Syphilis, presented before the Association for Research in Nervous and Mental Disease, Dec. 27, 1929, to be published.

Perceptually, the patient may show only minor changes except for his confusion. It was present in twenty-five cases (62.5 per cent) and disorientation in some degree in twenty-two cases (55 per cent). On the other hand, the patient may retain his more gross orientation until the disease is far advanced, as shown in six cases (15 per cent) of this series. Auditory hallucinations were present in six cases (15 per cent); one patient heard voices saying that her husband wanted her to die; one often heard God talking to him; one received messages and would shout to unseen persons; one heard voices saying good things about him. Two patients had tactile hallucinations, one of electricity and the other ill defined. Only one had visual hallucinations.

The development of the whole field of intellection depends on the age of the patient at the time the damage to the brain makes itself apparent. Early there are varying grades of feeblemindedness; later in all cases there is a deterioration or retrogression to a dementia. There was a history of regression in every case and an apparent mental deterioration in twenty-five of the forty cases. Regardless of the age of onset or previous mental development, the cases all reach a stage in which the mental picture is similar, and, except historically, *different types cannot be distinguished.*

Delusions are not rare in the juvenile cases. Eleven patients (27.5 per cent) in this series had paranoid ideas such as believing that they were being robbed, bewitched, mutilated or persecuted. Three (7.5 per cent) had grandiose ideas. One of the present patients, aged 20, talked of much money; a girl of 17 thought she had fabulous sums on the basis of which she ordered many expensive clothes; the third, a girl of 24, regarded herself as having much worldly wealth. But it seems reasonable to include other cases of younger individuals in which fighting was the result of pride in his prowess. Riding the subway all night was done in the belief that it was his specially granted privilege. Stealing was carried out without appreciation of the social significance. Much attention has been called to the absence of expansive delusions in the juvenile cases and it has been explained on the basis that "ambition and the sexual instincts do not become habitual passions dominating the will until after puberty." Such an explanation would construe grandiose ideas as concerned only with ambition and sexual instincts. It seems reasonable to expect the degree of grandeur of the ideas to be proportional to the age of the patient and consequently one cannot expect *in the child the ideas of grandeur seen in the adult.*

Emotionally the usual picture is an inadequate flattened response (twenty-four cases) with silliness, childish superficiality and euphoria. Many (twelve patients) are irritable at times and respond to any stimulus with a whine or a cry, or a temper outburst. Depression is occasionally present (eight cases); fourteen cases showed excited periods and six presented alternating periods of laughing and crying spells.

Much of the psychopathologic condition of the patient with juvenile dementia paralytica is demonstrated in his activity. The first mental symptoms are often behavior disorders: stealing, fighting, destruction of clothing or property, truancy, inefficiency, riding the subway all night, and other queer, unexplained acts. Eighteen (45 per cent) cases of this series demonstrated antisocial behavior. Mannerisms of speech and action are usually present: rambling silly speech, incessant chattering, profanity, laughing, mutism, collecting waste paper and other trinkets, and outbursts of temper. *Fourteen patients (35 per cent)* were untidy and four destructive. One was inclined to mutilate himself in various ways. Two were at times cataleptic and twelve (30 per cent) resistive.

Treatment.—Treatment seems to be regarded as universally ineffectual. In this group five patients were inoculated at least once and several twice with malaria without the malarial paroxysms ever developing. In thirteen others the patient had a malarial course. In nine of the thirteen there was no apparent change afterward; in one there was a temporary improvement which in a short time relapsed, and in the other three there seemed to be a fair degree of remission. Other means of treatment have been entirely unfruitful.

Presumably this fact can be explained if the brain is conceived of as having been so rapidly invaded and the damage so extensive that, even though relatively early in the disease, it is beyond the recuperating stage and the strongest therapeutic agents are ineffective.

SUMMARY

In this paper I have summarized in detail the symptoms and signs in juvenile dementia paralytica, stressing particularly the points of difference between it and dementia paralytica.

I take the position that juvenile dementia paralytica is the interaction of an immature, rapidly developing *personality and a slowly progressing infection, with* early distortion and later inhibition of development, and eventually breaking down of the complete biologic unit. Considered in this light, the various clinical pictures of juvenile dementia paralytica are interpreted and the differences between dementia paralytica in the child and in the adult are emphasized.

Special attention is called to the cases developing in feebleminded and often physically inferior children in whom the onset is often so insidious that it may be assumed to date from birth. I take issue with the "preparetic stage" theory, preferring to regard such asymptomatic cases as early dementia paralytica. Special consideration is given to infantilism occurring in *patients with juvenile dementia paralytica including both* the physical and the mental development, with particular emphasis on the mental picture.

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ABSTRACT OF DISCUSSION

Dr. Hans Reese, Madison, Wis.: Dr. Menninger's paper is a valuable contribution to the subject of juvenile dementia paralytica. There have been many articles on congenital syphilis but there has been no paper published recently which deals *with juvenile dementia paralytica. It is not a new entity at all* because in 1883 Diday of Paris reported the first relationship between dementia paralytica and congenital syphilis. Dr. Mabel G. Masten, who has reported on our experience at the University of Wisconsin, has found that among twenty children there were ten clear-cut cases of juvenile dementia paralytica, five cases of tabes, and three cases of taboparesis. In her group there was mental involvement in 68 per cent. The occurrence of juvenile dementia paralytica is not so rare. Careful examination of patients with congenital syphilis will reveal a mental deficiency similar but less pronounced than the mental status of acquired dementia paralytica. We do not depend on serologic *manifestations* alone but rely mostly on our clinical observations except in infants without neurologic signs. Endocrine or glandular dysfunctions have been present in all of our cases, which we attribute to an involvement of spirochetes of the endocrine system and not to a germ plasm degeneration. This phase was clearly demonstrated by Zabriskie in 1923. As long as the morphology of the spirochetes is not known, one is not allowed to speak of the neurotrophic or dermotrophic strain. Miscarriages, premature births, stillbirths, defective children, healthy children can be explained better by the gradually decreased virulence of the spirochetes. The mental involvement of juvenile dementia paralytica has been so clearly presented by Dr. Menninger that it is not necessary to discuss further "moral insanity." I feel that the outcome in untreated cases is usually simple deterioration, later a muttering, repulsive creature or a pathetic idiot. In regard to treatment I am not so pessimistic as Dr. Menninger. I feel that one should start with tryparsamide and then submit some patients to malarial treatment followed by either tryparsamide or sulpharsphenamine. Calcium should be added to the therapeutic efforts in cases presenting convulsions, which may be due more often to disturbance in the calcium metabolism than to vascular phenomena. Our results with this suggested treatment have proved to be more beneficial than those of previous reports.

Dr. H. W. Woltman, Rochester, Minn.: Dr. Menninger stressed the prominence of meningovascular features in juvenile dementia paralytica. These as well as the diffuse, subcortical, parenchymatous changes, which may include the basal ganglions, and the frequent involvement of the cerebellum, may lead to the production of clinical pictures that are not always easily recognized as juvenile dementia paralytica. Few other diseases exhibit a combination of such extreme physical and mental dilapidation. I must confess that I have lost much of my assurance in making a diagnosis of dementia paralytica, particularly in adults, in the face of negative serologic evidence. As Dr. Menninger said, it can be done and it has been done correctly, but I have been unable to forget a victim of my diagnostic acumen who unobligingly dropped dead with tumor of the brain about three days after I had cast to the winds a negative serologic warning. If anything substantial is to be done in the treatment of juvenile dementia paralytica, the disease must be recognized earlier than is usually the case.

Dr. Paul A. O'Leary, Rochester, Minn.: It is difficult for me to concede that the fact that 25 per cent of the congenital syphilitic children who had neurosyphilis were born of a neurosyphilitic parent is an argument in favor of the neurotropism of *Spirochaeta pallida*.. On the other hand, the 75 per cent who did not show involvement of the nervous system, although born of neurosyphilitic parents, is a more forceful point in favor of the lack of specificity of the organism. My experience with acquired syphilis, and congenital syphilis also, has repeatedly impressed on me that the clinical evidence is heartily against the specificity of *Spirochaeta pallida* and strongly in favor of the conception that the course of the disease is the result of the type of the soil on which the organism grows. I share in the pessimism expressed with regard to the treatment of patients with congenital neurosyphilis, after having employed the majority of specific and nonspecific methods of treatment recommended for this disease. The results are much inferior to those noted in the acquired forms of parenchymatous neurosyphilis. As a syphilologist my interest lies in the prevention of juvenile dementia paralytica by the early recognition of nervous system involvement. Even though the incidence of neurosyphilis is only 10 per cent in congenital syphilis, the routine examination of the spinal fluid in all cases of the retarded type is warranted, because the treatment of asymptomatic neurosyphilis is highly successful. The neurologist seldom sees the syphilologist's success but only his failures in neurosyphilotherapy. The routine examination of the spinal fluids of these children is a paramount feature in their treatment and the guide to the prevention of juvenile dementia paralytica.

Dr. W. C. Menninger, Topeka, Kan.: In my opinion, cases of juvenile dementia paralytica are probably fairly common but they occupy a rather unique place because these patients are usually too young to go to the state hospitals and they are often too psychotic to be accepted in institutions for the feebleminded. So one never knows where to look for them. I don't mean to imply in the paper that I support a neurotrophic strain of spirochetes. I mention it because so many of these cases do show neurosyphilis in the family history.

Clinical Notes, Suggestions and New Instruments

RUBBER FLASK CONNECTORS FOR HYPODERMOCLYSIS, INTRAVENOUS THERAPY AND OTHER USES

F. M. Pottenger, Jr., M.D., Monrovia, Calif.

Hypodermoclysis and intravenous therapy are at present administered by two general methods; namely, by means of the Kelly bottle and by the inverted flask as a reservoir with the necessary connections. Neither method gives complete satisfaction as used at present. Use of the Kelly bottle necessitates the transfer of sterile fluid from one container to another, offering an opportunity for contamination. To set up the inverted flask with the clamp and plate that are universally employed to maintain the stopper in position requires about five minutes. The metal connection corrodes under sterilization and use and the rubber ordinarily used soon deteriorates when subjected to repeated heat sterilizations.

In an effort to overcome these difficulties, two rubber connectors were developed. These connectors slip over the necks of flasks or bottles in the same manner as nursing nipples and are made in sizes to suit the various requirements. By using these, an ordinarily skilful nurse can complete a dozen hypodermoclysis outfits in the length of time required to set up a single plate and clamp.

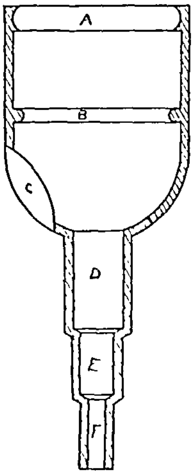

Fig. 1.—Cross-section of single-legged connector with the valve in the side wall: *A*, suction ring; *B*, guard to prevent connector from being pulled down too far; *C*, valve in side wall; *D*, three-eighths inch outlet; *E*, one-fourth inch outlet; *F*, one-eighth inch outlet.

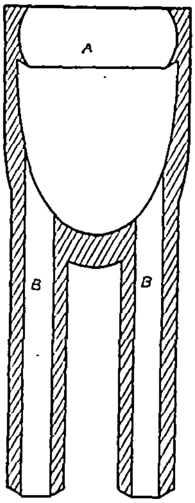

Fig. 2. — Cross-section of two-legged connector. *A*, suction ring; *B*, *B*, outlets.

A high grade, heat-resisting rubber is used in their manufacture. In addition to its chemical resisting qualities, this rubber has withstood without material damage thirty autoclavings at from 20 to 30 pounds pressure. A suction ring cast into the heavy rim provides additional security.

The first device is a single outlet connector with a valve for admitting air, as shown in figure 1.

Intravenous and hypodermoclysis therapy demand an air intake with a fluid outlet from a vessel into a circuit without the loss of fluid through the air inlet. This unit is made of rubber with a suction ring cast near the upper lip to insure a good hold on the neck of the flask or bottle. A second ring cast about an inch below the lip guards the connector from being forced down on the neck of the flask to a point at which the proper operation of the valve would be interfered with.

The outlet is made with three tapers so devised as to make it available for use with one-eighth inch, one-fourth inch and three-eighths inch or larger tubing. If one-eighth inch tubing is used, the connector may be used as it is. If one-fourth inch tubing is used, the one-eighth inch connection is cut off, and for larger sizes both of the two smaller joints are removed.

The valve is placed in the side wall of the connector in such a position that no air bubbles will pass into the outlet tube even though the fluid is allowed to flow freely from the one-eighth inch outlet under a head of 6 feet of water. This is a rate of flow greatly in excess of any used in practice.

An important advantage of this valve lies in the fact that the attending nurse can tell at a glance, by observing the flow of air bubbles through the fluid, whether or not the apparatus is in operation.

The flask, solution and connector may be sterilized as a unit, thus eliminating changes of sterile fluid from one receptacle to another.

TWO-LEGGED CONNECTOR

In addition to the demand for a connector with a single outlet for hypodermoclysis and intravenous uses, there is considerable demand for a two-legged connector both in medicine and in chemistry. Such a connector is shown in figure 2.

This connector possesses the general advantages already described and the additional feature of a double outlet.

The upper portion of the connector contains a heavy suction ring for security under moderate pressures, which makes the connector so firm that the flask or rubber will break before the connector can be pushed off by internal pressure.

In intravenous therapy and hypodermoclysis when objection is raised to the passage of air bubbles through the fluid, the employment of this connector will obviate that objection. A glass tube can be inserted into one leg, or one leg may be manufactured so as to project inward to a point above the surface of the fluid.

This will serve admirably as an inexpensive suction apparatus by connecting a long tube to a floor bottle from one leg and by inserting a glass tube in the other which extends upward above the surface of the fluid.

Numerous other applications become immediately evident to the clinician.

These connectors were first used in the service of chest surgery at the Los Angeles County General Hospital.

URTICARIA AND HAY-FEVER DUE TO TRICHOPHYTIN (EPIDERMOPHYTON INTERDIGITALE)

Fred Wise, M.D., and Marion B. Sulzberger, M.D.
New York

Recently one of us[1] together with Phyllis Kerr reported a case of urticarial hypersensitiveness to trichophytin, in which the passive transference by means of the blood serum (method of Prausnitz-Küstner) proved successful. To our knowledge this was the first case of its kind reported, and we called attention to the fact that the discovery of this type of hypersensitiveness made it possible that trichophytin products of pathogenic fungi might be the cause of some asthmas and hay-fevers, as well as of urticarias. In view of the widespread prevalence of ringworm infections, particularly those of the feet, it would seem to us to be reasonable to consider the possibility of an ever-present allergen in the investigation of patients with these disorders.

Since our first report, Ramirez,[2] in further expansion of our experiments, has discovered and published the report of a case of asthma which could be traced to trichophytin.

The case reported here is the first to have come to our attention in which the products of ringworm fungi (pathogenic hyphomycetes) are shown to have been the causative agents of an attack of hay-fever, and possibly of a typical neurodermite.

It is therefore added to the list of possible allergic manifestations that may be attributed to the presence of ringworm infections; this list already includes eczematous reactions,[3] urticarial reactions[1] and asthma.[2]

REPORT OF CASE

Mrs. W. H. C., a research worker, aged 32, had suffered from skin eruptions since she was a year old. The family history was negative. In childhood the eruption had been of an acute vesicular and weeping character and affected principally the flexures. The dermatitis never disappeared entirely but was subject to improvement and exacerbations. In adult life the skin became more dry and scaly, accompanied by severe itching. Ointments, the roentgen ray and other therapy served only to alleviate the skin symptoms. In addition to the condition of the skin, the patient suffered occasionally from hives and had occasional attacks of asthma and mild hay-fever. None of these conditions were seasonal in occurrence.

Two years prior to our seeing the patient she had undergone a severe tinea of both feet and hands. This was diagnosed and treated by her sister, who is a physician. The treatment resulted in an apparent cure. There are no further historical data that require mention here.

On first examination the patient presented the appearance of a normal woman of her age, with the exception of the skin. A superficial examination revealed no other organic lesions.

Over the entire body the skin was unusually dry, with a slight tendency to scaling. Both cubital regions presented fairly sharply demarcated areas in which the skin was definitely thickened, hyperpigmented and lichenified. At the outer margins of these areas there were irregularly scattered, approximately bean-sized, scratched, lichenoid papules. The sides of the neck were grayish and slightly lichenified, and both they and the face presented a peculiar slaty, or bluish and brownish gray tint, so often observed in diffuse neurodermite. Infiltration and itching were present in all these areas. The scalp was dry and scaly, the face slightly reddened.

The palms and soles were normal in appearance. There were no clinical signs of ringworm of the feet.

The patient and her sister both stated that we were now seeing the skin condition at its best.

A diagnosis of typical generalized and circumscript neurodermite was made.

As it has been a matter of routine, in our office, to test all cases of allergic skin eruptions with trichophytin, and as the patient's history evidenced a previous severe tinea of the feet, an intradermal test with trichophytin was performed. The trichophytin employed was one that we had ourselves prepared from a fungus of the *Epidermophyton interdigitale* group. The manner of preparation followed the standard specifications of Bruno Bloch. While we had already employed this and other trichophytins in a large number (more than 100) different cases, in only one have we seen a reaction in any way, although not entirely, comparable to one which this patient presented.[1]

Immediately after the intradermal injection of 0.1 cm. of trichophytin in the patient's arm, the wheal began to grow. It became white, porcelain-like, presented pseudopods and increased to approximately ten times its original size. An angry red zone appeared around the test site. Within approximately five minutes the patient complained of itching in the nose, and then of generalized itching. Small pea-sized hives appeared scattered over various parts of the body, on the arms and chest. The eyes began to water and attacks of violent sneezing set in. The itching in the nose became worse and there was difficulty in breathing. The eyelids became red and swollen. As the attack had not abated at the end of fifteen minutes, 4 minims of 1 : 1,000 solution of epinephrine hydrochloride was given subcutaneously, and this produced almost immediate relief.

COMMENT

In view of this attack of hay-fever and hives due to trichophytin, the presence of the fungi in mycotic skin diseases must in future be considered as the possible cause of certain hay-fevers and urticarias.

In addition to the typical trichophytids which are known and described, the list of allergic manifestations that can be caused by ringworm fungi or their products can now be enlarged to comprehend eczematous dermatitis, urticaria, asthma and hay-fever.

While the possibility seems to exist that certain cases of neurodermite may have a similar etiology, the evidence here submitted is inconclusive in this particular direction.

200 West Fifty-Ninth Street.

---

[1] Sulzberger, Marion B., and Kerr, Phyllis: Trichophytin Hypersensitiveness of Urticarial Type, J. Allergy, to be published.

[2] Ramirez, M. A.: Trichophytin Sensitization, M. J. & Rec. **132**: 382 (Oct. 15) 1930.

[3] Sulzberger, Marion B., and Lewis, G. M.: Trichophytin Hypersensitiveness Demonstrated by Contact Tests; Preliminary Report, Arch. Dermat. & Syph. **22**: 410 (Sept.) 1930.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

COD LIVER OIL (See New and Nonofficial Remedies, 1930, p. 255).

The following dosage form has been accepted:

Maltine with Cod Liver Oil and Iron Iodide: Maltine 70 per cent, cod liver oil 30 per cent, and ferrous iodide 0.88 Gm. (2 grains) to each fluid ounce. Maltine is a preparation essentially similar to extract of malt U. S. P., but it contains 3.88 per cent of alcohol and is prepared from malted barley, oats and wheat; as determined by a modification of the method of Chick and Roscoe (*Biochem. J.* **21:** 689, 1927), it contains one unit per gram (28 units per ounce) of vitamin B_1, one unit being the weight of the product necessary as the sole source of B_1 in an otherwise adequate diet to protect growing rats from polyneuritis and to assure normal growth; and ⅓ unit per gram (9 units per ounce) of vitamin B_2, one unit being the weight of the product necessary as the sole source of B_2 in an otherwise adequate diet to protect growing rats from pellagra and to assure normal growth; 1 Gm. converts 5 to 7 Gm. of starch to maltose and dextrin in thirty minutes at from 40 to 42 C. Maltine with cod liver oil and iron iodide contains in 100 cc. from 23,000 to 25,000 fat-soluble vitamin A units as determined by the U. S. Pharmacopeia assay and it has an antirachitic potency such that 0.02 Gm. fed daily to rachitic rats is sufficient to cause perceptible to distinct healing of rickets in from six to ten days as determined by the line test.

Manufactured by the Maltine Company, Brooklyn. No U. S. patent. U. S. trademark 44,566.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1930, p. 364).

Lederle Laboratories, Inc., Pearl River, New York.

Diphtheria Toxoid.—Prepared from diphtheria toxin of which the L+ dose is 0.2 cc. or less. The toxin is treated with formaldehyde at a temperature of 37 to 40 C. until the injection of five human doses into four 300 Gm. guinea-pigs will cause no signs of diphtheria poisoning. It is tested for antigenic power by injecting subcutaneously at least ten guinea-pigs weighing from 270 to 320 Gm. each with the initial human dose; at the end of six weeks each animal is injected subcutaneously with 5 M. L. D. of a stable diphtheria toxin; at least 80 per cent of the animals must survive for ten days. The finished product is adjusted to contain in 2 cc. enough of the toxoid for one immunization treatment. It is marketed in packages of one immunization treatment containing one 1 cc. vial of diluted toxoid for the reaction test and two 1 cc. vials of toxoid for treatment.

COMMITTEE ON FOODS

The following products have been accepted as conforming to the rules of the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

PET UNSWEETENED EVAPORATED MILK

Manufacturer.—Pet Milk Company, St. Louis.

Description.—An unsweetened evaporated milk complying with the U. S. Department of Agriculture definition and standard for evaporated milk.

Manufacture.—Fresh whole milk from healthy cows is obtained a few hours after milking. The sanitary conditions of collection, the handling, cooling and transportation of the milk are under strict supervision. It is tested for cleanness freshness and flavor before acceptance.

The milk is heated in jacketed hot wells to approximate boiling, then conveyed to partial-vacuum pans where from 50 to 60 per cent of the water is removed at from 120 to 130 F. The concentrated milk is homogenized by forcing through small apertures under a pressure of from 2,000 to 2,500 pounds. The fat globules are finely dispersed and later do not readily separate out. It is cooled to from 36 to 40 F., agitated in glass-lined tanks, and tested for fat and total solids. The fat and total solids must be not less than 7.8 and 25.5 per cent, respectively, and the sum of the fat and total solids not less than 33.7 per cent.

The tested milk is canned by injecting through small openings which are automatically sealed. The filled cans are inspected as to net weight, sealing and perfection of can. The sealed cans are processed in retorts at from 240 to 250 F. for twenty minutes, which accomplishes sterilization and favorably affects the viscosity. The cooled cans are stored for several days in a warm room. Any defective or improperly processed cans are discarded.

Composition.—

Total solids	25.5–26.5 per cent
Ash	1.5– 1.6 per cent
Protein (N × 6.38)	7.0– 8.2 per cent
Fat (ether extract)	7.8– 8.2 per cent
Lactose	9.5–10.0 per cent

Calories.—

1.36 per gram.
38.6 per ounce.
618. per pound.

Claims of Manufacturer.—Pet Evaporated Milk is uniform in fat and nonfat content and is sterile. The fat does not separate out. The homogenization makes this milk more readily digestible by babies and children than fresh or pasteurized milk because of softer, more flocculent curds formed in the stomach.

Pet Evaporated Milk may be used for cooking, baking and other purposes as is ordinary milk.

ALACTA

Manufacturer.—Mead Johnson and Company, Evansville, Ind.

Definition.—A dried, partially defatted milk designed for infant feeding formulas in which low fat content is desired.

Manufacture.—The milk is collected from tuberculin-tested cows under carefully supervised conditions. The fresh milk received each day is tested for bacteria, fat, odor, acidity and sediment, and stored in glass-enameled tanks at 50 F. The fat content is adjusted to 1.5 per cent, the modified milk is placed in a closed tank, the air is exhausted to a low pressure and the milk is heated to 230 F. for one and one-half minutes by steam under pressure. This is known as the Grindrod process. The heating occurs in the practical absence of air to minimize oxidation or destruction of the vitamins. The cooled milk is sprayed under high pressure into a current of cleaned, washed, heated air in a drying chamber. The milk solids fall to the bottom as a fine powder. The product is examined by the laboratory to determine whether it fulfils standard requirements and then packed in an atmosphere of nitrogen in hermetically sealed tins.

Composition (proximate analysis).—

	Per Cent
Moisture	1.5
Mineral salts	7.0
Milk-fat	12.0
Protein (N × 6.38)	33.0
Lactose	46.5

Calories.—

4.25 per gram.
121.0 per ounce.
1,936. per pound.

Claims of Manufacturer.—Alacta is a high grade dried milk with part of the milk-fat removed. It is for infant feeding as prescribed by the physician. Alacta contains no pathogenic bacteria. The bacterial counts are normally below 1,000 per gram.

The heating and drying processes effect a physical change which produces fine friable curds from diluted Alacta. The fat is in a finer globular condition than that in fresh or pasteurized milk. The salts apparently are not precipitated. The vitamins A and B (complex) remain practically unchanged, and vitamin C is only slightly affected.

Diluted Alacta may be employed in milk formulas in which a low milk-fat content is desired. Such feedings are sometimes well tolerated when less concentrated but higher fat feedings are not.

The Domain of the Pathologic.—We may say that the organism is healthy when it possesses the capacity to respond adequately to the influences of its surroundings; in a broad sense we may then also say that inadequacy of response indicates departure from health—a pathological state. Maladjustments of every sort will thus fall within the domain of the pathological. —Barker, L. F.: Porter Lectures, University Extension Division, Kansas City, 1930.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 15, 1930

SUPRARENAL FUNCTION

It has been eighty years since Addison[1] announced in London that a peculiar type of anemia associated with severe muscular weakness was related to a marked pathologic condition of the suprarenal glands. In an elaborate review of the accretions of knowledge in the intervening period regarding their possible functions and physiologic significance, Britton[2] of the University of Virginia has made the comment that even in these days of ultraspecialized—it might be called high-powered—physiology, three fourths of a century later, little definite information of suprarenal activity beyond that of the secretion of epinephrine by one part of the gland has been acquired. There have been many disappointments, numerous errors of experiment and interpretation, and several acrimonious debates regarding the claims of discovery, until the casual student began to wonder whether the suprarenals should be put in a category with the spleen or the appendix or the gallbladder as structures of doubtful physiologic potency.

The suprarenals, however, exhibited a feature that early set them apart from the other organs of challenged importance. Suprarenalectomy is a fatal operation. Anorexia and other gastro-intestinal disturbances are early indications of oncoming dissolution; muscular weakness gradually develops and is followed frequently by convulsions, coma and death, usually within one or two days of the obvious appearance of sickness. At first the critics asserted that death following removal of the suprarenals might really be referable to injury of important structures during operation, and to shock and secondary infections. Britton rates it as perhaps one of the most baffling facts to experimental physiologists today that all common laboratory animals from which the suprarenal glands (and cortical accessory tissues when present) have been removed, whether by the single or by the two-stage operation, definitely die within a short period. The complete operation can be conducted with little trauma, in a comparatively short time—from ten to thirty minutes in the case of most animals—and the tissue loss per se is extremely small—roughly, one three thousandth of the body weight. The most skilful surgical technic, combined with optimal postoperative attention, he adds, has not lessened the 100 per cent mortality that follows, usually within a week or ten days, complete removal of the suprarenal tissues.

The discovery of epinephrine in the medullary portion of the suprarenal structures and the demonstration of its unique physiologic potencies aroused expectations of securing a real answer to the problem of suprarenal function. More than thirty-five years ago, Schäfer and Oliver of London observed the marked pressor action of extracts of the glands. The selective action of the potent principle on unstriped muscles and its relationship to the sympathetic nervous system are admitted today. A calorigenic function of epinephrine also is recognized. But the fact remains that ablation of the suprarenal medulla alone is not necessarily fatal and administration of medullary extracts will not avert the impending disaster after complete suprarenalectomy. Thus attention has become focused on the suprarenal cortex. The latest development, notably the work of Swingle and Pfiffner[3] at Princeton University, demonstrates that a cortical extract can be prepared that is able to preserve the life of suprarenalectomized animals apparently indefinitely. The Swingle-Pfiffner extract is being tested with some indications of its efficiency in addisonian cases.

The fact that, in contrast with the rôle of the corticosuprarenal activity, the medullisuprarenal function is not indispensable to life should not be interpreted, as is continually being done, to mean that the medullary hormone is without real physiologic importance. It doubtless renders service in the stress as well as the routine of life. Several reviewers say that without question the medullisuprarenal mechanism along with the sympathetic system, dispensable in the protected conditions of ordinary laboratory life, typifies its great service to the organism at times of critical emergency, when it serves to adjust the pertinent visceral and somatic systems in the body to insure the optimal response to external exigencies. This has often been referred to in The Journal. Britton states in his conclusions that it has been overwhelmingly made clear that medullisuprarenal secretion is intimately and particularly concerned in adjusting and reinforcing bodily mechanisms in times of demand. That the chromaffin tissues can be spared without obviously endangering life yet with some detriment to the organism also appears well proved. Medullisuprarenal insufficiency possibly finds mitigation in the vicarious activity of the sympathetic nervous system. Nevertheless the whole sympathicomedullisuprarenal mechanism may be ablated without fatal result. Addison's disease appears to be more particularly referable to corticosuprarenal deficiency. It has not yet been shown, however, that regressive changes in the medullary tissues do not play a part in the etiology of the disease.

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[1] Addison, Thomas: London M. Gaz. **43:** 517, 1849.

[2] Britton, S. W.: Adrenal Insufficiency and Related Considerations, Physiol. Rev. **10:** 617 (Oct.) 1930.

[3] Swingle, W. W., and Pfiffner, J. J.: Science **71:** 321, 489; **72:** 75, 1930.

EAT AND GROW FAT

In a recent issue of THE JOURNAL,[1] consideration was given to the failure of many persons, who undoubtedly consume food fuel in excess of their requirements, to deposit fat. According to Wilder[2] of the University of Chicago, obesity may not be just a matter of excessive eating. Some abnormality, possibly an inadequacy of the mechanism of luxus consumption, must be present to account for the inability to rid the body effectively of excesses of food. In any event there, are enough persons in whom the balance between intake and output is favorable to accumulation of reserves to make the question of the management of obesity conspicuous. It might be expected from a biologic point of view that the body should include a protective or regulatory mechanism that would help to avert wide fluctuations in its adult size or weight. The stimulation of metabolism for this purpose, as Wilder intimated, might become an effective agency for averting obesity; it would not be an economic one. Far more probable is the assumption that our instincts so regulate the appetite that it becomes a dependable guide to proper food intake. Harrington[3] has pointed out that under strictly normal conditions the desire for food, that is, appetite, is such that the organism provides itself with materials in amounts that will keep its weight at the ideal level, but often the food intake is either excessive or insufficient to maintain the normal standard.

Everyday life affords examples of the perversion of appetites. Referring to the gastronomic field, Harrington remarked that it has become customary for the normal person to eat three meals a day, and the type of food which he eats is determined by his social and economic status. He gives little thought to the kind of food eaten and often does not remember the menu of the previous meal. However, suppose that a person decides to gain weight and so adds an extra slice of toast and some cereal to his morning meal until he has gained 15 pounds. After he has gained the desired weight, he continues to eat this amount because he has acquired the habit. If he omits these foods, he experiences a feeling of dissatisfaction and has the desire to eat more. It requires a conscious effort on his part to counteract this habit. Appetite and habit must be submerged by a stronger impulse, and the habit of overeating may be as hard to change as the alcoholic habit. Formation of a habit is a simple process, Harrington concludes, but changing the paths of transmission requires a strong impulse and a consciousness involving selection and control, or will.

Physicians frequently encounter situations in which the appetite may be inhibited by phobias to a degree that produces pathologic thinness. On the other hand, Harrington also emphasizes the observation that in obese persons the habit of overeating may be acquired as a means of entertainment, or as an outlet for the emotions. In the latter instance the will to lose weight must be developed before a distorted appetite can be suppressed. In other words, the interest in food expressed by certain types of emotional persons is often so great that some motive must be supplied to make them undertake a change in their food habits.

The clinician called on for corrective advice therefore must not merely consider the caloric aspect of his patient's nutrition but often also the personal peculiarities—the individual psychology—that have led to overeating. As Harrington has expressed it, the normal person may maintain a standard weight over a period of years if his living conditions remain constant and his nervous system remains stable. A decrease in activity, or an increased emotional stress, however, will produce a gain or loss in weight. Emotional stress may cause a loss of appetite, with a consequent loss in weight. The anorexia in the neurologic case can be cured by eliminating the inhibiting force and stimulating other interests strong enough to counteract this desire to avoid food, and the person can be made to gain weight.

In the Department of Internal Medicine at the University of Michigan, Harrington has studied the effects of various types of diet, including the "normal" regimen, a concentrated and a bulky type, on the body weight when the appetite was unrestrained. In the bulky diet the servings of concentrated foods were limited, and the remainder of the diet had to be selected from fruits and vegetables and other foods low in calories. It was adequate in minerals, vitamins and protein, and furnished one calory per gram of weight. In the concentrated diet the amount of low calory foods was limited, and only the usual amount of vegetables as given in the house diet were served. The total bulk of the diet was kept as low as that of the house diet, but the foods offered were highly concentrated. Cream and butter were used instead of milk, and dextrose and sucrose were used for sweetening in order to introduce more calories for a desired sweetness. The diet appeared the same as the normal diet but averaged *2.5 calories per gram of weight.*

All the experimental persons lost weight on the bulky diets. This indicated a loss of body tissue which, however, was not sufficient to force them to take energy enough to maintain their weight when it would have been necessary to eat a mass of food far beyond the habitual volume. Thus the appetite may be thwarted when the customary modes of nutrition are significantly altered without imposed restrictions to eating. Harrington therefore believes that the desire alone for food may not cause the organism to take in as much energy as it uses when the diet is bulky. Appetite may cause an excessive intake of energy when the diet is concentrated. For these reasons, she adds, it is possible to regulate the weight of an individual without any knowledge on his part of the composition of the diet, and, at the same time, completely to satisfy his appetite.

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[1] Eat and Stay Thin, editorial, J. A. M. A. 95: 1182 (Oct. 18) 1930.

[2] Wilder, R. M.: The Management of Obesity, J. Am. Dietet. A. 6: 91 (Sept.) 1930.

[3] Harrington, Mary M.: Appetite in Relation to Weight, J. Am. Dietet. A. 6: 101 (Sept.) 1930.

It is important that the medical profession give more serious consideration to the many factors, dietary and psychologic, that the problems of obesity involve. The indifference of many physicians to the details of successful treatment has played into the hands of the quack and the impostor. Thyroid preparations are often used without medical consultation. Parsons[4] has recently pointed out to lay readers that such practice is highly dangerous in the absence of expert medical advice, for thyroxine exerts a stimulating action on the whole of the body metabolism: it does not merely encourage the combustion of fat but facilitates just as much the burning up of more useful and essential materials, such as tissue proteins, so that although an obese person may actually lose weight as a result of taking thyroid extract this loss may be due to removal of essential body constituents as much as to removal of excess fat that the body has stored. And further—seeing that obesity may arise as a result of a number of different causes apart from thyroid deficiency—the person who suffers from it may, and probably will, already possess a normally functioning thyroid, so that when he (or more usually she) takes more thyroid for reducing the fat the harmful effects of excess of thyroxine are liable to be produced. The management of obesity calls for medical intelligence.

THE THEORY OF DIABETES

With the important advances that have been made in recent years in the management of diabetes, during a period that has included the advent of insulin therapy, a growing uncertainty has developed regarding the real nature of the metabolic defects involved. The fundamental observations include the hypoglycemia and loss of sugar through the kidneys. The involvement of the pancreas in the pathogenesis of diabetes is also generally conceded. Beyond that, however, opinions differ greatly.

The majority of those who discuss the perversion of metabolism have concluded that the organism has lost its capacity to oxidize carbohydrates. A recent writer[4] has summarized the current belief by the statement that the loss of sugar is not in itself such a serious matter: it means that so much of the food is wasted, but the body can use other materials besides sugar as fuel in the tissues—fats can be so used, and so can any excess of protein that is eaten over and above the amount that is required for making good the wear and tear of the tissues. But it so happens, he adds, that the burning of fat and the burning of sugar in the body are processes that are not completely independent of each other. If a certain amount of sugar is not being burned in the body, fats cannot be burned completely either.

This is, briefly stated, the crux of the nonoxidation theory of diabetes. The engaging evidence in favor of it is reviewed in every textbook of physiology. There is, however, an alternative theory that has long been championed, especially in Europe. It ascribes the hyperglycemia and glycosuria that occur to an overproduction of dextrose from protein and fat. This overproduction, whose chief site is probably the liver, is great enough to cause the accumulation and excretion of excess sugar, in spite of the continued ability to oxidize it.

The production of sugar from protein in the person with diabetes is generally admitted. The "overproduction" theory of diabetes calls for the conversion of fat into carbohydrate. Striking evidence of such gluconeogenesis from fat has been presented by the Toronto school of physiologists, notably by Chaikoff and Weber.[5] They found that when epinephrine, which "mobilizes" sugar in the organism, is injected repeatedly into depancreatized animals from which insulin and food have been withheld, the excretion of dextrose in the urine may increase far beyond what can be accounted for from preformed carbohydrate, protein and glycerin. This result can be explained only in one way; namely, that the extra dextrose is derived from fatty acid. As to the manner in which epinephrine acts in stimulating the formation of sugar from fat, little that is definite is known; but the available evidence would seem to indicate that it does so indirectly by causing the liver glycogen to disappear.

The overproduction theory assumes at least partially if not wholly unimpaired capacity of the diabetic organism to oxidize carbohydrate. The studies of Soskin[6] at the University of Toronto have made highly questionable the commonly accepted evidence that the diabetic organism suffers complete impairment in its ability to oxidize carbohydrate. The data are technical and need not be reviewed here. However, if the demonstration that totally diabetic animals can oxidize carbohydrate is valid, it upsets the popular theory of the formation of ketone substances in diabetes. As Soskin remarks, it can no longer be assumed that failure of carbohydrate oxidation causes a disturbance in the utilization of fat, whereby the ketone bodies arise. In short, a more exact, if less picturesque, conception should be found than the one commonly quoted as "Fat burns in the fires of carbohydrate." Soskin ventures the belief that, if the ketone substances familiar in diabetes may be regarded as intermediary products in the conversion of fat to carbohydrate, their accumulation in diabetes (like the accumulation of dextrose) is due to the excessive gluconeogenesis that characterizes this condition. Whatever the ultimate answer may be, the "overproduction" theory of diabetes can no longer be calmly disregarded in the interpretation of the complex problems involved. We suspect, however, that it will not long remain free from counterattack.

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[4] Parsons, T. R.: The Materials of Life, New York, W. W. Norton & Co., 1930.

[5] Chaikoff, I. L., and Weber, J. J.: The Formation of Sugar from Fatty Acids in the Depancreatized Dog Injected with Epinephrine, J. Biol. Chem. **76**: 813 (March) 1928.

[6] Soskin, S.: The Utilization of Carbohydrate by Totally Depancreatized Dogs Receiving No Insulin, J. Nutrition **3**: 99 (Sept.) 1930.

Current Comment

NATURE OF THE SUBSTANCE IN LIVER ACTIVE IN PERNICIOUS ANEMIA

It is scarcely more than four years since the announcement was made by Minot and Murphy[1] of Harvard University Medical School that, in cases of pernicious anemia, the feeding of liver produces an increased concentration of reticulocytes and mature erythrocytes in peripheral blood. The discovery has been widely heralded and has proved to be alike a boon to the therapeutist and a blessing to mankind. One can readily understand why the search for the "active principle" was prosecuted promptly and vigorously. The ingestion of the requisite large quantities of liver becomes extremely distasteful to most patients. The possibility that the potent substance, or perhaps one of the significant ingredients, might eventually be synthesized in the laboratory as epinephrine has been was an added stimulus to chemical research. Within a short time the evidence pointed against the probability that the active agent is either protein or lipoidal in nature. It was evidently devoid of sulphur or of iron.[2] Then came the isolation of an active crystalline salt by West and Howe,[3] to be followed promptly with the demonstration by Dakin, West and Howe[4] at the Medical Clinic of the Presbyterian Hospital, Columbia University, New York, that a substance clinically potent in pernicious anemia is a compound of beta-hydroxyglutamic acid and hydroxyproline. Both of these substances possess the characters of protein derivatives; the mode of their linkage remains to be ascertained. The unexpectedly simple nature of this highly potent liver substance is indeed surprising. The genius of the investigators in this sequence of contributions deserves a tribute from American medicine.

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[1] Minot, G. R., and Murphy, W. P.: Treatment of Pernicious Anemia by a Special Diet, J. A. M. A. **87**: 470 (Aug. 14) 1926; A Diet Rich in Liver in the Treatment of Pernicious Anemia, ibid. **89**: 759 (Sept. 3) 1927.

[2] Cohn, E. J.; Minot, G. R.; Fulton, J. F.; Ulrichs, H. F.; Sargent, F. C.; Weare, J. H., and Murphy, W. P.: The Nature of the Material in Liver Effective in Pernicious Anemia, J. Biol. Chem. **74**: lxix (July) 1927. Cohn, E. J.; Minot, G. R.; Alles, G. A., and Salter, W. T.: Ibid. **77**: 325 (May) 1928. Cohn, E. J.; McMeekin, T. L., and Minot, G. R.: Am. J. Physiol. **90**: 316 (Oct.) 1929. Cohn, E. J.; McMeekin, T. L., and Minot, G. R.: J. Biol. Chem. **87**: xlix (June) 1930.

[3] West, Randolph; and Howe, Marion: A Crystalline Derivative of an Acid Present in Liver, Active in Pernicious Anemia, J. Biol. Chem. **88**: 427 (Aug.) 1930.

[4] Dakin, H. D.; West, Randolph; and Howe, Marion: Further Note on a Substance in Liver Active in Pernicious Anemia, Proc. Soc. Exper. Biol. & Med. **28**: 2 (Oct.) 1930.

HYDROPHAGOCYTOSIS

Those privileged to see the Lewis-Gregory[1] motion pictures of fertilized mammalian eggs, mammalian leukocytes and mammalian tissue cultures have seen dramatized many familiar deductions from histology. Two leukocytes racing and struggling for possession of a single food particle, with the cytologic reactions of victory and defeat; cytocannibalism with the elimination of a senile brother; rhythmic cycles of cellular activity and cellular sleep; and the ceremonious ballet of the chromosomes heralding the approach of nuclear division. Accompanying these expected phenomena, however, are numerous surprises, reactions unpostulated by conventional histology. A prominent example is the phenomenon of hydrophagocytosis, in which macrophages mechanically drink the surrounding plasma. The macrophages of the Lewis films are constantly forming and withdrawing winglike or sail-like pseudopodia. Two neighboring pseudopodial sheets meet and fuse at their outer edges, imprisoning a portion of the surrounding plasma. This captured plasma sample is drawn into the body of the macrophage, there fusing with other swallowed droplets to form a unit vacuole. This vacuole does not rupture but gradually loses its water content by protoplasmic absorption or diffusion, the less diffusible colloids remaining behind. The vacuole becomes more and more concentrated as it shrinks in size. Finally there remains but a small granule of semidesiccated colloids. This process can be followed in detail by addition of a nondiffusible dye to the tissue culture fluid. Physiologists will find in the Lewis phenomenon suggestion of a new mechanism of cellular nutrition and mechanical filtration or purification of body fluids. Immunologists will see in it confirmatory evidence of Metchnikoff's belief that the macrophages are the main place of disposal of soluble antigens, and the logical chief site of synthesis of specific antibodies.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:15 on Tuesday, 10:30 on Thursday, and 10 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

November 17.	Diabetes: Its Treatment and Prevention.
November 18.	The Early Diagnosis of Cancer.
November 20.	Vincent's Infection (Trench Mouth): Its Control.
November 22.	Philosophy for the Sick.

Five Minute Health Talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

November 17.	Music in Medicine.
November 18.	Music in Medicine.
November 19.	The Sore Throat Danger Signal.
November 20.	Tularemia.
November 21.	Banishing the Blues.
November 22.	Half Alive.

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[1] The Lewis-Gregory films may be purchased or rented through the Carnegie Institution, Washington, D. C.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Four Health Units to Be Established.—Dr. James N. Baker, Montgomery, state health officer, is reported to have recently announced that health units will soon be operating in Perry, Marion, Henry and Butler counties. With the addition of these units, only eleven counties will remain unorganized in the state. In the organization plan followed, a health unit requires a minimum expenditure by the county of about $3,500 a year, which amount is matched by the state.

CALIFORNIA

Mussel and Clam Quarantine Raised.—The quarantine order issued by the director of the department of public health, July 16, prohibiting the sale of clams and mussels along the coast from Monterey County to Del Norte County, was raised, October 1.

Personal.—At the annual meeting of the Board of Medical Examiners of the State of California, October 20, in Sacramento, Dr. Percy T. Phillips, Santa Cruz, was reelected president; Drs. William R. Molony, Los Angeles, and Charles B. Pinkham, San Francisco, were reelected vice president and secretary, respectively.

Society News.—Dr. Thomas Addis, San Francisco, addressed the Los Angeles County Medical Association, November 6, on "Prognosis in Bright's Disease."——The Los Angeles and San Francisco Orthopedic societies were addressed at a joint meeting, November 8, by Dr. Edward C. Bull, San Francisco, on "Some Observations on Bone Lengthening (Relative to Tibiae and Femora)."

Dr. Pepper Gives Scripps Clinic Lectures.—Dr. Oliver Hazard Perry Pepper, professor of clinical medicine, University of Pennsylvania School of Medicine, Philadelphia, will give the sixth annual Scripps Metabolic Clinic Lectures at La Jolla early in January, under the auspices of the Scripps Lectureship Endowment, to members of the San Diego County Medical Society. The meeting will be primarily in the form of lecture-clinics.

Harvard Fellowships for Medical Students.—The chairman of the Harvard Scholarship Committee of the San Francisco Harvard Club has called attention to the fact that two scholarships of $500 each, available every year for men of the University of California or Stanford University, are open to students of the medical school. Although these scholarships have been established for more than forty years, all the recipients have attended other departments of Harvard than the medical school. The committee will welcome the first application of this scholarship from prospective medical students.

"Dr." C. R. Jackson Arrested.—"Dr." Clyde R. Jackson was recently arrested in San Jose, it is reported, for passing worthless checks. He is reported to be the same individual who, in 1927, visited Ann Arbor, Mich., representing himself as a kidney specialist and stating that he intended to take special work at the university. He cashed worthless checks at two drug stores and left town (The Journal, Oct. 1, 1927, p. 1158; Oct. 8, 1927, p. 1257). According to the chief of police of San Jose, Jackson is wanted by the police in San Francisco, Berkeley, San Diego, Pomona and Compton for issuing fictitious checks.

COLORADO

Licenses Restored.—At a recent meeting of the Colorado State Board of Medical Examiners, the licenses to practice medicine of Drs. Floyd H. Weidlein, Palisade, and Frank F. Stivers, Kansas City, Mo., were restored. Dr. Weidlein's license was revoked in April, 1930, for making false representations in his application for a license to practice medicine in the state. Dr. Stivers' license was revoked in April, 1929, having been convicted of a felony in the district court of Logan County.

Society News.—The Pueblo County Medical Society was addressed, October 21, by Drs. Edward Delehanty on "Importance of the County Society in Organized Medicine" and Constantine F. Kemper, Denver, "Precision in the Treatment of Diseases of the Endocrine Glands"; Mr. Harvey T. Sethman, executive secretary of the state medical society, spoke on "Medical Defense and Liability Insurance."——The Boulder County Medical Society was addressed in October by Dr. Carbon Gillaspie on "Confinements in the Home."——Drs. Lewis H. McKinnie and William P. McCrossin, Jr., Colorado Springs, delivered papers on "Clinical Indications for Thoracoplasty" and "Clinical Indication for Open Operation on Empyema," respectively, before the El Paso County Medical Society, October 8.

Pediatric Department Organized.—At the last meeting of the board of regents of the University of Colorado, a department of pediatrics was organized in the school of medicine. Prior to this time, pediatrics was a division of the department of medicine. Dr. Franklin P. Gengenbach was promoted from the rank of associate professor of pediatrics to professor of pediatrics and head of the department. The following promotions and appointments to the faculty of the school of medicine are announced:

Dr. Alfred Hamlin Washburn, associate professor of pediatrics.
Dr. John William Amesse, assistant professor of pediatrics.
Drs. Roy Parsons Forbes, Emanuel Friedman and Louis Carl Wollenweber, instructors in pediatrics.
Dr. John Bramwell Davis, to associate professor of surgery (urology).
Dr. Henry Williams Wilcox, promoted to associate professor of surgery (orthopedics), and head of the division of orthopedics.
Dr. Charles E. Sevier, appointed professor of surgery (orthopedics).
Drs. Hamilton Ishan Barnard and Atha Thomas, appointed instructors in surgery (orthopedics).
Dr. Lyman Whidbee Mason, appointed instructor in obstetrics and gynecology.
Dr. William Cormack Black, Jr., transferred from the department of clinical pathology to the department of pathology as instructor.

DISTRICT OF COLUMBIA

Full Time Teachers at Georgetown.—The following changes and appointments at Georgetown University School of Medicine have been announced:

Dr. Wallace M. Yater, to whole-time professor of medicine.
Dr. Mario Mollari, to whole-time professor of bacteriology.
Dr. Jacob Markowitz, appointed whole-time professor of physiology.
George A. Bennett, A.B., appointed whole-time professor of histology and embryology.
Theodore Koppanyi, Ph.D., appointed whole-time professor of pharmacology.
Dr. Alexander B. Moore, appointed professor of roentgenology.
Dr. Harry S. Bernton, appointed professor of preventive medicine and hygiene.

ILLINOIS

Society News.—The annual meeting of the Tri-County Medical Society (Warren, Henry, Knox) was addressed at Galesburg, October 13, among others, by Drs. Rollo K. Packard, Chicago, on "Surgical Mortality and Morbidity," and Alexander A. Goldsmith, Chicago, on "Chronic Colitis."——The Quincy Physicians' Club was addressed, November 3, by Dr. Melinda C. K. Germann on "The Progress of Pediatrics"; the club will be addressed, November 17, by Dr. Clarence A. Wells on "Progress of Anesthesia."——Dr. Charles Spencer Williamson, Chicago, discussed "Research Work Along the Lines of Anemia, Especially Nutritional Anemias and Pericarditis" before the Will-Grundy County Medical Society, Joliet, November 5.——Dr. Noble Sproat Heaney, Chicago, spoke on endometriosis before the Peoria City Medical Society, October 21.

Chicago

Dedication of Medical Buildings.—The state department of public welfare and the College of Medicine of the University of Illinois dedicated four buildings, October 29. These buildings, the State Orthopedic Institute, the Institute for Juvenile Research, the Nurses' Home and the Research and Educational Hospital Service Building, are units of the Research and Educational Hospital operated by the University of Illinois. Addresses were given by Governor Emmerson, Harry Woodburn Chase, LL.D., president of the University of Illinois, and Rodney H. Brandon, director of the department of public welfare. After the dedication of these buildings, officials of the University of Illinois laid the cornerstone of their new $1,500,000 Medical and Dental Laboratory Building, at Polk and Lincoln streets. These laboratories are designed to accommodate 200 students in a class. The Research and Educational Hospital has a capacity of 450 beds.

Society News.—At the annual meeting of the Chicago Gynecological Society, October 17, Dr. Henry Schmitz was elected president, and Dr. Julius E. Lackner, secretary.——Dr. Aldred Scott Warthin, Ann Arbor, Mich., will deliver the eleventh annual Pasteur lecture before the Institute of Medicine of Chicago, November 21, on "Problems in Latent Syphilis."——A joint meeting of the Chicago Council of Medical Women and the Chicago Medical Society was addressed, October 29, by Drs. Mabel E. Gardner, Cincinnati, on "Multiple Small Peritoneal Cysts of the Fallopian Tubes," illustrated, and Susan R. Offutt, Rochester, Minn., "Chronic Cervicitis (Office Treatment)."——Drs. Lee W. Dean, St. Louis, and Walter R. Parker, Detroit, addressed a joint dinner meeting of the Chicago Ophthalmological Society and the Chicago Laryngological Society, in honor of the American Academy of Ophthalmology and Otolaryngology and the invited guest, Prof. Emil de Grosz; their subjects were "Relationship of Otolaryngology to Pediatrics" and "Uveitis with Trophic Changes," respectively.——The annual study class of the Chicago Heart Association held its first meeting, November 10; it will continue each succeeding Monday, including December 8; the subjects will include "The Child's Heart," "The Heart Beyond the Midpoint of Life" and "Care and Treatment of Cardiacs."

INDIANA

Society News.—The Fountain-Warren County Medical Society was addressed at Veedersburg, October 2, by Dr. Albert C. Holley, Attica, on "X-Ray Diagnosis of Colonic Flexures with Associate Contraction of Descending Colon and Pains Simulating Appendicitis."——Dr. Ernest Rupel, Indianapolis, addressed the Hendricks County Medical Society at Danville, October 17, on genito-urinary diseases.——"Head Injuries With and Without Skull Fracture" was the subject of Dr. Albert E. Sterne, Indianapolis, before the Wayne-Union County Medical Society at Richmond, October 16.——Dr. Foster J. Hudson, Indianapolis, addressed the Hamilton County Medical Society at Sheridan, October 14, on "Most Common Birth Injuries."——The Carroll County Medical Society was addressed at Camden, October 10, by Mr. Albert Stump, Indianapolis, attorney for the state medical association, on "Cause and Prevention of Malpractice Suits."——Dr. Roscoe H. Beeson, Muncie, addressed the Delaware-Blackford County Medical Society at Muncie, October 21, on state medicine.——The Tri-County Medical Society was addressed at North Vernon, October 15, by Dr. John H. Warvel, Indianapolis, on "Juvenile Diabetes."——The Indianapolis Medical Society was addressed, November 11, by Drs. Cleon A. Nafe on acute appendicitis and Louis H. Segar, "Mastoiditis with Lateral Sinus Thrombosis Without Otorrhea in a Two Months' Old Infant"; the society will conduct a symposium on five years' experience with the malaria treatment of neurosyphilis, November 18; Dr. Ursus V. Portmann, Cleveland, will address the society, November 25, on "Rôle of Radiation Therapy in Treatment of Benign Gynecologic Conditions."——The Muncie Academy of Medicine was addressed, October 14, by Dr. Willis D. Gatch, Indianapolis, on treatment of postoperative surgical emergencies.

MAINE

Society News.—Dr. Bryant E. Moulton, Boston, addressed the Cumberland County Medical Society, October 10, on "Psychiatric Aspect of Delinquency."——Dr. Thomas A. Devan, Rochester, N. Y., recently succeeded Dr. George H. Stone as superintendent of the Eastern Maine General Hospital, Bangor.

Experiment in Graduate Medical Education.—The officials of the Central Maine General Hospital, Lewiston, under the auspices of the Harvard Medical School Courses for Graduates, have announced a plan of graduate medical education for districts removed from large medical centers. The method is to conduct ten teaching clinics either monthly or bimonthly. One thousand dollars has been devoted to put the project into operation and Dr. Soma Weiss, assistant professor of medicine at Harvard Medical School, will head the service.

MASSACHUSETTS

Course in Heart Disease for Practitioners.—The New England Heart Association has planned a series of meetings for New England physicians to present the most approved and up-to-date views concerning heart disease, including various methods of cardiovascular examination. The series began, November 5, on "Auscultation of Heart Sounds." Other subjects to be presented include "Normal Blood Pressure," "Cardiovascular Roentgenology," "Electrocardiography," "Dyspnea," "Blood Flow," "Cardiac Pain" and "Edema." The meetings are scheduled for the afternoon, beginning at 4:30 of the first Wednesday of each month and will be held at the Boston Medical Library (Sprague Hall).

Society News.—The Essex North District Medical Society was addressed at a joint meeting with the Middlesex North and East and Essex South district medical societies, October 22, at the new Veterans' Bureau Hospital at Bedford; the speakers were Drs. Robert B. Greenough, Boston, president, state medical society; Charles E. Mongan, Somerville, "Trends in Medical Economics," and Winthrop Adams, Washington, D. C., "The Veterans' Bureau and the General Practitioner."——"Dermatomes in Man" was the subject of Dr. Otfried Foerster, professor of neurology, University of Breslau, before the Harvard Medical Society, Boston, October 14.——The William Harvey Society of Tufts Medical School, Boston, was addressed, November 14, by Dr. Howard W. Haggard, New Haven, Conn., on "Medicine Through the Ages."——Dr. David Cheever, Boston, lectured, November 12, on the care of the patient, at the Harvard University Medical School; Dr. David Riesman, Philadelphia, will talk on the same subject, November 19; Dr. William H. Robey, Boston, will deliver the George W. Gay lectures on medical ethics, December 3 and 10.——Dr. Harvey Cushing, Boston, addressed the Harvard Medical Society, Boston, October 28, on "Benign Fourth Ventricle Tumors of Childhood: A Review of Seventy-Eight Cases."

MICHIGAN

Personal.—Dr. Asher T. Childers, Cleveland, psychiatrist for Cuyahoga County Juvenile Court for the last two years, has been appointed chief of the psychiatric staff of the Children's Fund of Michigan.——Dr. George W. Westcott, Ypsilanti, and Mrs. Westcott sailed from New York, September 24, it is reported, for Belgian Congo, Africa, as medical missionaries.

Society News.—Dr. Louis H. Newburgh, Ann Arbor, addressed the Wayne County Medical Society, November 4, on "Value of the Insensible Loss of Weight in Clinical Medicine"; the society was addressed, November 11, by Col. Percy M. Ashburn, librarian of the Army Medical Library, War Department, Washington, D. C., on "Contributions to Medical Science Made by the Medical Department of the United States Army."——Dr. Don H. Duffie, Central Lake, addressed the Calhoun County Medical Society, November 4, on "Home Cure of Diabetes."——The second graduate clinical conference on communicable diseases of the Wayne County Medical Society was held, November 5, at the Herman Kiefer Hospital, Detroit. At this session the mechanical respirator originated by Dr. Cecil K. Drinker of Harvard University, Boston, was demonstrated; 214 physicians registered at the opening session, October 29.

MINNESOTA

Medical Journal Celebrates Sixtieth Anniversary.—The *Journal-Lancet* will celebrate its sixtieth anniversary, Jan 1, 1931. In honor of the occasion, it is planned to publish a Sixtieth Anniversary Volume and to send one to every physician and every hospital in the states of Wisconsin, Iowa, Minnesota, North and South Dakota and Montana. Among the subjects to be included in this special volume will be: History of Minnesota State Medical Society; History of the North and South Dakota State Medical Societies; Development of Tuberculosis Work in the Northwest; Development of Preventive Medicine; History of Individual County Medical Societies, and Reminiscences and Reprinted Papers.

Society News.—The Minnesota Academy of Medicine was addressed, November 12, by Drs. Alexander Stewart and William H. Hengstler, St. Paul, on "Observations on Serotherapy in Scarlet Fever" and "Neurologic Aspect of Head Injuries," respectively.——The twelfth annual meeting of the Association of Resident and Ex-Resident Physicians of the Mayo Clinic and Mayo Foundation held at Rochester, October 7-9, was addressed among others by Dr. Robert L. Sanders, Memphis, Tenn., on "The Art of Surgery." Symposiums were held on recent advances in anesthesia, allergic diseases and fractures and clinics were held at the various hospitals. Dr. James I. Scarborough, Little Rock, Ark., was elected president and Dr. Thomas J. Kinsella, Oak Terrace, Minn., secretary.

MISSOURI

Personal.—Dr. Eldon M. Findley, who has practiced in Graham for twelve years, was appointed instructor in physiology at the University of Missouri School of Medicine, September 14.——Dr. William W. Rambo, Jr., St. Louis, was appointed full-time physician and surgeon at the Missouri State Penitentiary, recently, succeeding Dr. Frank W. Gillham, Jefferson City.

University News.—The corner stone of the Edward Mallinckrodt Institute of Radiology of Washington University, St. Louis, was placed, October 2. The building is expected to be completed about January 1 at a cost of $500,000. Within the copper box placed in the corner stone was a picture of the late Edward Mallinckrodt, Sr., who left a bequest of $300,000 for the erection of the institute.

The Woman's Auxiliaries and Hygeia.—The woman's auxiliaries of several county medical societies have recently entered subscriptions to *Hygeia*, the Health Magazine. The auxiliary of the Buchanan County Medical Society entered 116 subscriptions; that of the Gentry County Medical Society, 75 subscriptions; the Lafayette County Medical Society, 83; Vernon-Cedar County Medical Society, 133, and the Jackson County Medical Society auxiliary, 83. Most of these subscriptions are to be sent to school teachers and various associations.

Dr. Abbott Goes to Stanford University.—Dr. LeRoy C. Abbott, St. Louis, chief surgeon at the Shriners' Hospital for Crippled Children, has resigned to accept a position as head of the department of orthopedics in Leland Stanford University School of Medicine, San Francisco. The resignation becomes effective, December 1; Dr. Clarence H. Crego, Jr., first assistant to Dr. Abbott, will be his temporary successor pending the making of a permanent appointment. Dr. Abbott has been chief surgeon at the hospital since it was opened in December, 1923, and since 1925 has been professor of clinical orthopedic surgery at Washington University Medical School, St. Louis.

Plan to Unify Eighty-Five Health Agencies.—Plans for coordinating the eighty-five health agencies in St. Louis under an advisory Health Council were recently presented before the St. Louis Medical Society. The preliminary organization work has been done under the auspices of the Community Council, financed by the Community Fund, but the Health Council is to be a separate group since about half of the health agencies are nonmembers of the fund. The function of the Health Council will be to eliminate the overlapping of health agencies working separately. It is said that the forty-two hospitals, eleven clinics and thirty-two other agencies devoted to the promotion of health in St. Louis and St. Louis County have no relation to one another and therefore spend considerable money and effort ineffectively.

Society News.—The Jasper County Medical Society was addressed, October 14, by Dr. George E. Knappenberger, Kansas City, on "Factors Concerned in the Curability of Peptic Ulcer."——Dr. George Leonard Harrington, Kansas City, addressed the Nodaway County Medical Society, September 12, on "Psychology in Medicine, with Especial Attention to the Neuroses."——"Some Occasional Untoward Effects of Treatment of Syphilis by Arsenic with Special Reference to Skin Exfoliation" was the subject of Dr. Stephen T. Ragan, Moberly, before the Randolph-Monroe County Medical Society recently.——Dr. Charles A. Elliott, Chicago, addressed the Jackson County Medical Society, November 11, on "The Management of Edema"; Mr. Paul Lukenbach of the scientific staff, General Electric Company, spoke on "Newer Developments in Physiotherapy, Diathermy and X-Ray."

NEBRASKA

Society News.—The Fifth District Medical Association was addressed, November 6, at Oakland, among others, by Drs. Clyde A. Roeder, Omaha, "A New Structural Classification of Goiter," and William L. Shearer, Omaha, "Surgery of the Jaws"; after-dinner speakers were Drs. Charles W. M. Poynter, Omaha, "The University Hospital," and Philip H. Bartholomew, Lincoln, "Responsibility of the Medical Profession in the Management of Communicable Diseases."

NEW YORK

Hospital News.—A new $800,000 wing to St. John's Hospital, Yonkers, was recently opened. It has a capacity of 150 beds and doubles the number contained in the old building, which will be reconstructed and made into an administration building.

Another Child Guidance Clinic.—The National Committee for Mental Hygiene opened, September 1, the Child Guidance Clinic of Niagara Falls after two years of preparation, which included definite advances in local social work, recreation, probation service and education. This is the first full-time clinic in a community of between 50,000 and 100,000 people. It is financed for a period of ten years through the Martha H. Beeman Foundation and is headed by Dr. William G. Ferguson. An effort will be made to establish cooperation between the clinic and the University of Buffalo Medical School.

Society News.—The Fifth District Medical Society was addressed at its twenty-fourth annual meeting, in Little Falls, September 30, among others by Dr. John E. Sutton, Jr., New York, on "Treatment of Varicose Veins."——Dr. Charles Gordon Heyd, New York, addressed the Eighth District Medical Society, October 2, in Perrysburg on "Salient Features of Surgical Diagnosis in Conditions of the Abdomen," and Dr. William T. Shanahan, Sonyea, "Epilepsies—Etiology and Diagnosis."——"The County Health Unit and the Need of Hospital Facilities for the County" was the subject of Dr. Thomas Parran, Jr., state health commissioner, before the Greene County Medical Society, October 7, at Cairo.——The Clinton County Medical Society was addressed at Plattsburg, October 14, by Drs. Arthur Krida, New York, and Anton S. Schneider, Plattsburg, on "Surgery of the Knee Joint" and "Phlyctenular Disease in General Practice," respectively.——Clifford W. Beers gave a brief review of his book "A Mind That Found Itself" before the Rockland County Medical Society at Letchworth Village, September 24.——Drs. Edgar A. Vander Veer and Homer L. Nelms, Albany, gave an illustrated lecture on "Nervous Indigestion," October 14, before the Schoharie County Medical Society, and Dr. David W. Beard, Cobleskill, presented a series of three films on "Injuries of the Hand."

New York City

The Second Harvey Lecture.—Karl S. Lashley, Ph.D., Chicago, will deliver the second Harvey Society Lecture at the New York Academy of Medicine, November 20, on "Mass Action and Localization of Functions in the Cerebral Cortex."

Hospital News.—New York Skin and Cancer Hospital has been given a gram of radium in soluble form by an anonymous donor and a special cancer clinic has been opened. With removal of the institution to its future quarters, in the recently purchased Lying-In Hospital, an emanation plant will be installed for which the same donor will make an annual gift of an additional gram of radium for three successive years.

Society News.—The German Medical Association was addressed, November 3, by Drs. Otfried Foerster, Breslau, Germany, on "Palliative Operations of Nervous Diseases," and Charles A. Elsberg, "Modern Brain and Spinal Surgery."——The clinical aspects and management of cardiac neuroses was discussed by Drs. H. Mond and Lewis A. Conner, respectively, before the November 5 meeting of the Harlem Medical Association.——The program for December of the fifth series of Friday afternoon lectures at the New York Academy of Medicine on subjects of special interest to the practitioner will be as follows: Dr. Nellis B. Foster, "The Thyroid"; Dr. Alfred F. Hess, "Therapeutics of Ultraviolet Light," and Miss Frances Perkins, state industrial commissioner, Albany, "Occupational and Industrial Diseases."——Dr. Angelo L. Soresi addressed the Bronx County Medical Society, November 5, on "New Views on Pathogenesis, Diagnosis and Treatment of Ulcer and Cancer of the Stomach, Cholelithiasis and Diseases of the Digestive Organs in General."——The New York City Physicians' Golfing Association held the last tournament of the season at the Oakland Golf Club, October 23. Dr. Harry M. Imboden won the first prize.

First Health Center Opened.—The first of sixteen health centers to be established by the department of health was recently opened in Harlem. At present the center offers prenatal, preschool and dental clinics and a baby health station. Other services soon to be operated will include medical guidance, a tuberculosis diagnostic clinic with roentgen laboratory, and general laboratory facilities for private physicians of the neighborhood. A service will be offered for the examination of tuberculosis contracts, and a venereal clinic will also be maintained. The center houses also the Harlem Tuberculosis and Health Committee, the district offices of the bureau of nursing, the Henry Street Visiting Nurse Association and the Speedwell Society. The health department schedule calls for four neighborhood health centers to be opened each year in districts that show the greatest need for intensive public health work. For the establishment of the first four units of the sixteen health centers to be built within the next four years, the city has allotted $1,000,000. Each unit is to cost $250,000 and one of these will be built each year until every health district in the city, arbitrarily divided into blocks of from 50,000 to 100,000, will have a complete health service available not only to the public but to physicians as well. By this unit decentralization of public health service, each section of the city will have the full services of the health department as well as those of various private medicosociological and welfare bodies.

OHIO

Conference of Health Officers.—The eleventh annual conference of health commissioners with the Ohio Department of Health will be held at the Neil House, Columbus, November 18-21. During the same week a maternity institute will be held for public health nurses, and on the 20th and 21st the Ohio Society of Sanitarians will meet. Among the speakers at the conference of health commissioners will be a discussion of Ohio's recent survey of tourists' lodging houses by

Dr. Walter J. Smith, medical inspector of the state health department, and Charles S. Slade, sanitary engineer, state health department; heart disease and its control measures by Dr. Irl C. Riggin, New York, formerly health commissioner of Lorain County. Dr. Harvey J. Powell, Bowling Green, will outline "Medical Science as the Greatest Factor in Civilization," and undulant fever will be discussed by Dr. Walter M. Simpson, Dayton. There are 162 health commissioners in Ohio representing 178 organized districts. The maternity institute will feature a discussion of the maternity situation, prenatal care, a review of delivery and postpartum care and a discussion of mothers' classes, with demonstrations and exhibits.

Status of Poliomyelitis.—The *Ohio Health News*, October 1, states that the incidence of poliomyelitis was at that time increasing so rapidly that the state department of health sent out an admonitory bulletin to all health commissioners urging them and the medical profession to exercise the utmost vigilance in the detection of cases and precaution to prevent the spread of the disease. The poliomyelitis outbreak began its upward trend in July with thirty-seven cases. In August there were 100 reported cases, which followed a diagonal line across the state from Cincinnati to Cleveland. In September, 305 cases were reported and the October 15 *Ohio Health News* reported only 141 cases for October, which totals 583 cases thus far this year. The bulletin emphasizes a more general distribution of the disease in rural than in urban territory. It points out that contact with either case or carrier was the only method of spreading found in the investigation of more than 1,000 cases in 1927 and emphasizes the fact that definitely paralyzed patients are not the most dangerous to the community, because, being easily recognized, they are usually promptly quarantined and properly cared for.

Society News.—Dr. George E. Rockwell, Cincinnati, addressed the Clermont County Medical Society, October 15, at Marathon, on "Allergy and Its Significance to the General Practitioner."——The Butler County Medical Society was addressed, October 8, at Middletown by Drs. Mabel E. Gardner and Harold F. Downing, Cincinnati, on "Pubiotomy" and "Early Symptoms and Diagnosis of Acute Infantile Paralysis," respectively.——A joint meeting of the Toledo Academy of Medicine and the Clinical Orthopedic Society was addressed, October 31, by Dr. George W. Hawley, Bridgeport, Conn., on "Newer Apparatus in the Treatment of Fractures of the Femur."——Dr. Charles W. Stone, Cleveland, addressed the Mahoning County Medical Society, September 30, at Youngstown, on "Mental Disturbances Seen in General Practice."——Among others, Dr. Loyal E. Leavenworth, Canton, addressed the Stark County Medical Society on "Sterility and Its Treatment."——The twenty-fourth Hanna Lecture of Western Reserve University, Cleveland, was delivered at the Institute of Pathology, October 31, by Prof. M. Weinberg of the Pasteur Institute, Paris, on "Rôle Played by the Anaerobes in the Etiology, Pathogenesis and Evolution of Infectious Diseases."——The Summit County Medical Society, Akron, was addressed, November 4, by Dr. Albert Kuntz, St. Louis, on "Anatomical Basis of Sympathectomy."——Dr. Jacob P. Greenhill, Chicago, addressed the Columbus Academy of Medicine, October 13, on "Forceps Deliveries."

PENNSYLVANIA

Society News.—The Bucks County Medical Society was addressed, November 12, at Doylestown, by Dr. William Bates, Philadelphia, on "Diagnosis of Diseases of the Colon."——Dr. William Wayne Babcock, Philadelphia, delivered an address on "The Romance of Anesthesia" before the Northumberland County Medical Society, November 5, at Shamokin.——The Medical Forum will have as its guest speaker Dr. Isidore W. Held, New York, November 15; his subject will be "Modern Aspects of Jaundice and Its Application to Diagnosis."

Philadelphia

The Mutter Lecture.—It has been announced that the annual Mutter lecture for 1930 of the College of Physicians of Philadelphia will be delivered in Mitchell Hall, College of Physicians, by Dr. Frank H. Lahey, Boston, December 3, on "Management of Goiter and Hyperthyroidism."

Personal.—Dr. Harold F. Robertson has been appointed associate professor of medicine at Temple University School of Medicine. Dr. Robertson, who is a graduate of the University of Pennsylvania, is medical consultant for Dr. Chevalier Jackson and is connected with several local hospitals.

Court Rules Naturopaths Cannot Confer Degrees.—The Pennsylvania Society of Naturopaths, Philadelphia, was excluded from the privilege and right to confer degrees in an opinion recently handed down in Dauphin County Court. The decree forbid the society and its naturopathic college from granting degrees of doctor of naturopathy, doctor of natural philosophy or the honorary degree of doctor of natural philosophy.

Hospital News.—An artificial respirator will be installed in each of the following ten hospitals: Philadelphia General, Jefferson, St. Agnes', University, Episcopal and Germantown hospitals, all of Philadelphia; Chester Hospital, Chester; Montgomery, Norristown; Abington (Pa.) Hospital and Bryn Mawr (Pa.) Hospital. The respirators were obtained through the cooperation of the Philadelphia Electric Company and the United Gas Improvement Company.

County Society and Graduate Teaching.—Two foundations have been established under the control of the Philadelphia County Medical Society to give impetus to graduate teaching. The Dr. Mary Fisher Foundation, established in 1928, held its first annual ophthalmologic lecture, November 12. The Da Costa Foundation plans its first meeting for the season of 1930-1931. Dr. William W. Keen added $500 to the fund recently.

University News.—A series of postgraduate lectures was given by the University of Pennsylvania Graduate School of Medicine: the speaker, October 27, was Dr. John A. Kolmer on "Pathogenesis of Infection or the Agencies by Which Parasites Produce Disease"; October 27, Dr. George E. Pfahler, "General Principles of X-Ray Therapy"; October 31, Dr. Edward Lodholz, "Physiological Basis of Personality," and October 31, Dr. Kolmer, "The Nature and Pathogenesis of Bacterial Toxins."

Society News.—The Philadelphia County Medical Society was addressed, November 12, by Drs. Charles R. Heed on "The Conservation of Vision from an Industrial Standpoint"; J. Milton Griscom, "The Eyes of Your Children," and William Zentmayer, "Importance of Ocular Examinations After the Fourth Decade of Life."——Among others, Dr. F. G. Harrison addressed the Philadelphia Urological Society, October 27, on "Philadelphia's Contribution to Urology."——The Medico-Legal Society of Philadelphia was addressed, October 28, by Dr. Alfred Gordon on "Morbid Impulse, Criminal Act and Mental Responsibility."——Drs. Isaac Andrussier and Charles Mazer addressed the Obstetrical Society of Philadelphia, November 6, on "Incidence, Diagnosis and Treatment of Functional Sterility"; Joseph V. Klauder and Herman Brown, "Study of the Calcium-Phosphorus Ratio in the Serum of Syphilitic Pregnant Women," and Thaddeus L. Montgomery, "The Etiology and the Significance of Necrosis (Infarction) of the Placenta: A Biologic and Histologic Study."

RHODE ISLAND

Society News.—The Providence Medical Association was addressed, November 3, by Drs. Raymond F. Hacking on "Perimetry and Its Relation to Some Intracranial Lesions," and Harry C. Messinger, "The Pituitary and Some Features of Tumors in the Pituitary Region." The association was addressed, October 6, by Drs. Emanuel W. Benjamin and William Louis Chapman .on "Intravenous Urography" and "The Decadent Anatomy of the Colon," respectively.

SOUTH DAKOTA

Society News.—North and South Dakota will hold a joint annual session at Aberdeen, S. D., June 2-4, 1931. This will be a celebration of the fiftieth annual session of organized medicine in the territory of Dakota from which the two states were organized.

VIRGINIA

State Medical Election.—At the annual meeting of the Medical Society of Virginia, October 22, Dr. James Allison Hodges, Richmond, was installed as president; Dr. Isaac C. Harrison, Danville, was made president-elect, and Miss Agnes V. Edwards, Richmond, was reelected secretary. The next annual session will be held at Roanoke.

WISCONSIN

Society News.—The University of Wisconsin Medical Society was addressed, November 14, by Dr. M. Weinberg of the Pasteur Institute, Paris, France, on "Serum Therapy in Diseases Due to Pathogenic Anaerobes."——The Medical Society of Milwaukee County was addressed, November 14, by Drs. Eleanore Cushing-Lippitt and Charles L. Scudder, Boston, on "The Health of Working Children" and "The Indications for the Treatment of Fractures by Operation," respectively. Dr. Scudder conducted a clinic at the new county hospital.

CANADA

Grenfell Hospital in Labrador Burns.—A recent newspaper dispatch stated that the Grenfell Hospital at Battle Harbor, Newfoundland, was destroyed by fire, November 3. It was built in 1892 and had a capacity of thirty beds. This was the first one built in Labrador by Sir Wilfred Grenfell and the principal unit in a chain of institutions 150 miles apart. The hospital was unoccupied at the time of burning, as the mission had moved during October into winter quarters farther inland.

GENERAL

Study of Former Yellow Fever Patients.—The International Health Board is endeavoring through the state boards of health to get in touch with persons who had yellow fever forty or more years ago. It wishes to secure blood to use in investigations to prove whether immunity from yellow fever was permanently established in those suffering from it.

Did You Return the Card?—For months a large force of clerks have been revising and bringing up to date data preparatory to publishing the new Twelfth Edition of the American Medical Directory. Every physician who has failed to return his card requesting directory information is urged to do so at once regardless of whether or not a change has occurred in the information requested.

Birth Rate Lowest in Fifteen Years.—The census bureau recently reported that the American birth rate for 1929, 18.9 per hundred thousand of population, was the lowest since 1915, when such statistics were first compiled on a national scale. The infant mortality rate also dropped to the lowest point on record, sixty-eight deaths of infants under 1 year of age for each 1,000 born. In 1916 and 1918 the records showed that the mortality rate was 101 per thousand deaths.

American Board of Otolaryngology.—An examination was held by the American Board of Otolaryngology, October 27, during the session of the American Academy of Ophthalmology and Otolaryngology. One hundred and eleven candidates were examined, of which eighteen were either conditioned or failed. The board will hold an examination in Los Angeles in the spring, preceding the meeting of the Pacific Coast Oto-Ophthalmological Society, and in Philadelphia at the time of the meeting of the American Medical Association in June. An examination will also be given in the fall, at Indianapolis, preceding the meeting of the American Academy of Ophthalmology and Otolaryngology at French Lick Springs. Prospective applicants for a certificate should address the secretary, Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, for proper application blanks.

Ban on Importation of Parrots Lifted.—The ban on the importation of parrots into the United States, which became effective last January during the psittacosis outbreak was lifted by the U. S. Public Health Service, October 30. Parrots may now be brought in through ports where quarantine officers are stationed, subject to certain regulations of shipping, detention and inspection. Shipments are limited to 100 birds each. No more than ten birds may be shipped in a crate of specified size and constructed with special provision for ventilation and cleansing. All parrot shipments will be detained for fifteen days so that their health may be observed by the quarantine inspector. An individual returning from the tropics or elsewhere abroad may bring in as many as five privately owned parrots without having them held for the fifteen day inspection period. However, these birds must have been kept in a good sanitary environment away from contact with other parrots for at least sixty days preceding entry to this country.

Society News.—At the thirty-fifth annual meeting of the American Academy of Ophthalmology and Otolaryngology, Chicago, October 27-31, Dr. John F. Barnhill, Indianapolis, was installed as president; Dr. Samuel Hanford McKee, Montreal, Que., was made president-elect, and Dr. William P. Wherry, Omaha, executive secretary, reelected. The next annual meeting of the academy will be held in French Lick, Ind., in 1931. Prof. Emile de Grosz, Budapest, Hungary, was elected an honorary member of the academy.——The National Society for the Prevention of Blindness will hold its annual conference in New York City with headquarters in the Russell Sage Building, 130 East Twenty-Second Street, November 17-18, in cooperation with the National Organization for Public Health Nursing, New York State Department of Education, New York City Department of Health and Sight-Saving Class Supervisors and Teachers. Included in the program will be conferences on the relation of lighting to vision conservation and medical social service in conservation of vision; conservation of vision in school children and sight-saving class activities in America. Dr. George S. Derby, Boston, will address the meeting on "Conservation of Eyesight with Especial Reference to Glaucoma."

White House Conference on Child Health.—The White House Conference on Child Health and Protection will be held in Washington, D. C., November 19-22, to consider studies made by its staff of more than 1,200 experts during the last year. President Hoover will address the conference at its opening session and his message will be broadcast over a national hookup to previously arranged groups of interested men and women throughout the country. Reports of the technical work of the committee will be divided into four major sections in charge of Dr. Samuel McC. Hamill, medical service; Surg. Gen. Hugh S. Cumming, public health service and administration; F. J. Kelly, Ph.D., education and training, and C. C. Carstens, Ph.D., the handicapped; prevention, maintenance, protection. Arrangements have been made for the various committees to perfect their reports at breakfast and luncheons. The conference is made up of delegates invited by the President, appointees of the governors of the several states and selections made by committee chairmen. The general session will be addressed, November 20, by Hon. James J. Davis on "The National Economy of Child Health and Protection," and the public meeting, Friday evening with radio broadcast, by Dr. Ray Lyman Wilbur, "A Survey and a Challenge"; at 12:45 p. m. Saturday, he will summarize the conclusions and recommendations of the conference in an address which will be broadcast over the National Farm and Home Hour hookup. The White House Conference on Child Health and Protection was called by President Hoover as an extragovernmental function. In addition to the integration of existing information, the committee has carried out several interesting pieces of original investigation, among which is the family interview survey conducted by the Committee on Medical Care for Children with the cooperation of the department of agriculture. The general committee's work has been financed by special grants from private sources supplemented by special grants from foundations and associations having a particular interest in the conference studies.

FOREIGN

Indian Government Accepts Rockefeller Gift.—The government of India has accepted the offer of the Rockefeller Foundation to build and equip an All-India Institute of Hygiene in Calcutta. Lieut. Col. A. D. Stewart has been appointed director-designate, a site is being acquired and all provisional plans have been made. The institute will afford opportunity for research and teaching in problems of public health with special reference to Indian conditions and will cooperate with the present Calcutta School of Tropical Medicine and the affiliated Pasteur Institute, the Carmichael Hospital for Tropical Diseases and the Leonard Rogers Laboratories. The latter has a special staff working on leprosy, kala-azar, hookworm, intestinal diseases and filariasis. The Calcutta school published more than eighty technical papers on tropical problems last year.

Health of Aviators.—The figures relating to sickness and death in the Royal Air Force during 1929 were slightly higher than during 1928. The annual report states that 83.3 per cent of the total sickness was associated with disease, and 16.7 per cent with injury. The increase in the disease rate was due to increase in influenza and tonsillitis at home and malaria abroad. The rate of venereal disease, 15 per thousand, is the lowest yet recorded. A slight increase in the invalid rate was due to cases of the enteric group sent back from Iraq. An increase in invalid cases was noted for tuberculosis, valvular heart disease, chronic suppurative otitis media and mental diseases, and a decrease was noted on account of the psychoneuroses, defective vision and fractures. During the year seventy-two deaths from injury compared with ninety-seven deaths in 1928 were noted, and there were thirty-three deaths from disease compared to forty in 1928. The investigations of effects of fast flying and intensive aerobatics showed that no special physical examination was necessary and that the rotation test to ascertain suitability of the applicant was as precise as the specially designed whirling arm used in the Central Medical Establishment. The dimming or "blacking out" of the aviator's eyes occurring when steeply banking at high speed and reported to be due to a withdrawal of blood from the eye itself does not incapacitate the individual from managing aircraft but should be taken by pilots as a warning not to increase these effects by turning farther.

Existing correction prod.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 25, 1930.

The Distribution of Population

At the centenary of the Royal Geographical Society, now being celebrated in London, Mr. A. M. Carr-Saunders, professor of social science at Liverpool University, discussed several aspects of the distribution of population. He pointed out that in certain regions, such as the East Indies, the population was sparse, though the natural resources were considerable, because the skill of the inhabitants was low. With increased skill a much larger population could be accommodated. In the so-called new countries, where the aboriginal populations had been pushed aside, there were also possibilities of absorbing surplus population. In Europe almost alone was there pressure of such a nature as to make likely outward movements supported by force, if it was not otherwise eased. Sufficient notice had not been taken of the declining birth rate of Europe. In all the countries of northern and western Europe the situation was such that if the fertility and mortality rates now prevailing were stabilized at their present levels, the population would before many years begin to decline. There was no longer a replacement birth rate, and, while mortality rates rapidly decreased, the birth rate continued to fall. In southern and eastern Europe the position had not been examined with the same care, but the tendencies were in the same direction, except in Russia and one or two small Baltic states. Outside these areas the problem of disposing of the surplus and relieving pressure in Europe was therefore limited in amount and in time. The new countries were experiencing a similar fall in birth rate. The United States had now only a replacement birth rate. It seemed that the new countries were not going to fill up by the natural increase of their inhabitants and that they could take immigrants from Europe to an extent that would go far to relieve such pressure as existed, though it was by no means certain that they would be willing. Hence the importance of the immigration laws at the present time, since they might block the most promising outlets for the relief of pressure. If international understandings could be reached on migration the future of the white races was bright, so far as that was concerned. The same could not be said of the non-European races that were not controlling their birth rates. These had serious overpopulation in large areas, but that did not constitute a world danger because the pressure led not to movements with force behind them but to internal weakness. The effect was disastrous to those who suffered from it, but it affected the rest of the world only indirectly.

London's Lowest Birth Rate

The lowest birth rate ever recorded in London is announced by the health officer, Dr. F. N. Kay Menzies, for the year 1929. Births in that year numbered 70,089, or 15.8 per thousand of population, against 16.2 in 1928. The number was actually fewer by 887 than in 1918, when the influence of the Great War was at its height. It is estimated that the population of the official "County of London" has decreased from 5,524,000 at the time of the last census in 1921, by 94,000, to 4,430,000 in the middle of 1929. Deaths in the civil population during the year under review numbered 62,889, or 14.2 per thousand, against 12.1 of the previous year. This increase was due to the influenza epidemic, associated with an unusually rigorous winter, and in addition to the prevalence of whooping cough. Fatal street accidents increased from 747 in 1928 to 814. The report states that there are about 30,000 basement dwellings in London, housing about 100,000 persons, which are not fit for human habitation. It will be noted that the fall in the population of the "County of London," amounting to 2,263, is not due to excess of deaths over births. It is largely due to migration to the outlying parts of "greater London," which still continues to grow.

The Sterilization of Mental Defectives

The sterilization of mental defectives has been a topic of controversy for some time in this country. In a letter to the *Lancet,* Drs. Langdon-Down, J. A. Ryle and C. P. Blacker advocate a special form of sterilization—before marriage. The board of control of lunacy administration, in its report for 1929, recommended prohibition of the marriage of mental defectives. But these physicians think that the end in view—the prevention of procreation—could be realized more effectively, more humanely and less dangerously by making marriage conditioned on previous sterilization. They point out that certain high grade defectives are highly fertile and have many illegitimate children. If they are legally prohibited from marrying, promiscuity would be promoted. Many of them also have strong sexual needs and it is hardly humane to deprive them of lawful marriage. Finally, the promiscuity due to preventing marriage would promote the spread of venereal disease.

A National Maternity Service Foreshadowed

Addressing the annual conference of the labor party, Mr. Greenwood, minister of health, said that it was a tragic thing that maternity was the deadliest of callings, that every year 3,000 mothers should die in the performance of the greatest of all tasks and responsibilities. Yet 60 per cent of maternal deaths were preventable. Moreover, the conditions that led to the deaths of the 3,000 might leave their mark for life on many of the 700,000 who survived. The problem was a baffling one, and so far from the maternity death rate declining, it had actually been increasing. The situation was due to many causes. He was going to say to the local authorities: "Parliament has placed in your hands, in the public health responsibilities which you bear, opportunities for dealing with the problem." He hoped that local authorities would make the necessary provision for antenatal treatment, for maternity hospitals and for postnatal treatment. But it was necessary to go further and to evolve a national maternity service, and the government would do that as soon as possible. To deal with the problem effectively, every form of health provision and health service must be mobilized. Local authorities and the medical profession must be consulted with a view to framing a comprehensive scheme.

The British Red Cross Society

The British Red Cross Society has published a volume containing a report of the first conference of the Empire Red Cross Society, held in London last year. The book shows the widespread activities of the society. In Canada, for example, the British Red Cross runs fifty-four outpost hospitals, providing medical and nursing care for pioneer settlers in places to which ordinary hospitals have not yet penetrated. In Australia, tuberculosis is a great problem. The Red Cross has established seven sanatoriums and convalescent homes throughout the colony for returned soldiers and civilian patients and their families. An interesting feature is the provision of automobiles to enable disabled ex-soldiers to carry on their work. In India, child welfare is in the forefront of the Red Cross problem program. More than 200 child welfare centers have been opened. In the Madras Presidency alone nearly 1,000,000 mothers and children attended the centers in a year. Training is given to the dais (hereditary midwives), whose practices are often appalling. Health education is also carried on by means of films, lantern slides, posters, health and baby weeks and demonstration cars, which tour rural districts. After the great Assam flood last year, the Red Cross inoculated 50,000 persons and so prevented an outbreak of cholera. The South African Red Cross has developed an extensive scheme for the instruction in first aid, both of Europeans and of natives working in the Transvaal mines. Health vans tour the Kafir villages, giving lectures, and first-aid dressing stations are set up at important centers.

Birth Control Condemned

In a previous letter the carefully guarded tolerance of birth control under certain conditions in the encyclical letter issued by the seventh Lambeth conference of the archbishops and bishops of the Church of England was reported (The Journal, September 20, p. 874). But the Roman Catholic Church in this, as in other countries, condemns the practice absolutely. Its official head, Cardinal Bourne, Archbishop of Westminster, in a sermon said he would fail in his duty if he allowed to pass unnoticed the Lambeth pronouncement, "which condones in certain circumstances practices—euphemistically described as birth control—which Christian tradition has consistently condemned as unnatural sin. Lest any be led astray by this resolution of the Lambeth conference and placed thereby in danger of committing grievious sin, I now reaffirm the teaching of the Catholic Church on this subject, binding on the conscience of every man and every woman. Any direct interference with the natural consequence of the marital relation—namely, conception, whether within the marriage state or without it—is an unnatural vice, sinning against the nature which the Creator has bestowed on us."

A Great Pathologic Collection

The greatest pathologic collection made by one man since John Hunter laid the foundation of the Museum of the Royal College of Surgeons is the work of Dr. Cuthbert Lockyer, consulting gynecologist to Charing Cross Hospital, who has now presented it to the hospital. It consists of 3,000 obstetric and gynecologic specimens and is the finest of its kind in London. It represents the work of thirty years and is supplemented by 2,000 microscopic sections of the actual specimens displayed or of parallel conditions. Dr. Lockyer has written and published a catalogue, which has taken him five years to compile. He has also provided a donation of $2,500, the interest on which is to be used for the maintenance of the collection in its present perfect condition. The catalogue, of 297 pages, is so arranged as to act as its own index and contains comments that should be instructive to the student. The collection covers all the ordinary diseases of the female genital organs and includes many rare conditions. It should be valuable not only to the students of the hospital but to all investigators of these diseases.

PARIS

(From Our Regular Correspondent)

Oct. 15, 1930.

Meeting of the French Surgical Society

The thirty-ninth annual meeting of the Société française de chirurgie was held, October 6, in the Great Hall of the Faculté de médecine. The corridors, together with booths erected in the courtyard, were replete with exhibits of apparatus and equipment. The president was Dr. Auvray, agrégé professor at the Faculté de médecine de Paris and surgeon to the Hôpitaux de Paris, who was assisted by the vice president, Professor Lambret of Lille, and by the general secretary, Dr. Grégoire. It has been the custom to appoint each year, as the honorary president, a national figure who, though not a medical man, has shown interest in medicine. Maréchal Joffre, Maréchal Lyautey and others have been accorded that honor. This year Mr. Paul Bourget, whose plays and stories contain many allusions to physiologic psychology and who has shown, all his life, a great predilection for medicine, was thus distinguished. He has always expressed regret that he did not become a physician. He took courses in surgery at Maisonneuve, later visited the clinics of Dieulafoy, and today, at the age of 76, he frequents the dispensaries for abnormal children. His opening address abounded in wit, although it was philosophic in tone. He exalted in the surgeon the necessary combination of thought and action, the former illuminating the latter, which may be generalized and taken as a maxim of life itself. The active president, Mr. Auvray, discussed in his inaugural address the need of creating in France, as well as in the United States and in England, a body of professional anesthetists. Often, in hospitals, anesthesia is entrusted to inexperienced students. Auvray recalled with regret the deaths of several members of the society during the past year, particularly Tuffier, Lecène, Souligoux and Delagénière. The scientific work of the congress comprised the study of three selected topics and of a number of unofficial communications presented by surgeons in the provinces and in foreign countries. In general, the surgeons of Paris are not so widely represented at this congress, although it always meets in Paris, either with the idea of leaving a freer hand to their guests or because the weekly discussions before the Société de chirurgie are found to be adequate. On the other hand, all the morning, in their hospital services and in the large clinics, they give operative demonstrations for the edification of their colleagues visiting Paris and, if occasion arises, even allow their services to be used by eminent foreign surgeons for demonstrative purposes. For instance, Dr. Pierre Rhéaune of Montreal gave a demonstration of his method of performing gastrostomy. Among other representatives from foreign countries who were in attendance may be mentioned Professors Sionard of the University of Quebec, Archibald Young of Glasgow, Lozano of Saragossa, and Alessandri, Diminici and Galeazzi of the universities of Italy.

KÜMMELL'S DISEASE, OR POSTTRAUMATIC SPONDYLITIS

The introductory paper on the first official topic was presented by Drs. Froelich of Nancy and Mouchet of Paris, who discussed the merits of the several names for the disease: rarefying osteitis of the vertebral bodies, posttraumatic disease of the spinal column, posttraumatic deformation of the vertebrae, and others. As to the pathogenesis, the prevailing idea is that of an unrecognized fracture, with hematoma and local denutrition of the bone. The researches of Schmorl of Dresden have contributed much toward the elucidation of the condition. The vertebral depression is due to the fact that the patients, after a slight traumatism, experience no pain and continue to walk. To this must be added the effect of the intervertebral disk, which often manages to break through the interior of the bone tissue and to cause a general disorganization. As Leriche views it, Kümmell's disease is only a special type of posttraumatic osteoporosis due to hyperemia. The authors referred to the growing frequency of this disorder. The war, with the disorder of trench life, automobile accidents with closed cars, and also railway accidents have greatly increased the number of cases. The disease, in 60 per cent of the cases, has its seat in the lumbar or dorsolumbar region. The diagnosis is often difficult in the beginning. The resulting deformation of the spine cannot be remedied other than by the application of a plaster cast and the wearing of a corset. The paper closed with a study of the question from the point of view of labor legislation and insurance.

Further communications on posttraumatic spondylitis were presented by Lozano of Saragossa; Julliard and Oltramare of Geneva; Alivisatos of Athens; Leriche of Strasbourg; Michel of Nancy; Jeanbrau of Montpellier; Proust, Judet, Peugniez, Roederer and Trêves of Paris; Guillaume-Louis of Tours; Rocher and Gourdon of Bordeaux; Leclerc of Dijon; Imbert, Rottenstein, Massini and Silhol of Marseilles; Termier of Grenoble; Perdu of Amiens, and Mencière of Reims.

PREPARATION OF PATIENTS FOR OPERATIONS

Two official papers were offered on "The Preparation of Patients for Operations," by Professor Lambret of Lille and by Dr. Louis Sauvé of Paris. The former dealt with the prevention of disorders due to anesthetics; the determination of the resistance of the patient to be operated on, by means of analyses to discover the functioning of the liver and the kidneys; the preparatory diet; the importance of hydration of the tissues (which led him to oppose absolutely previous purgation), and, finally, the peculiar part played by temperament and by the condition of the endocrine glands. Special consideration was given to diabetes, in which Lambret advised the use of insulin for the preparation of the patient; also to anemia due to previous hemorrhage, in which he recommended the transfusion of blood in order to mitigate the danger of pulmonary and cardiac complications. In fact, the paper dealt with operative results, with a view to preventing unfavorable sequels, as it did with preparatory care. Mr. Sauvé kept closer to the subject in hand and considered the various diathetic states; also diabetes, malaria, obesity, intoxications, tuberculosis and syphilis, from the point of view of the risks that the traumatism will impose on every patient of that type. In conclusion, Sauvé expressed his satisfaction that surgery is enlarging the field of knowledge by means of which operative risks may be diminished and that its rôle is rising above that of mere skilful manual workmanship.

These papers were followed by articles, on the same subject, by Archibald Young of Glasgow; Daniel of Bucharest; Neuman and Mayer of Brussels; Sciaky of Milan; Leriche of Strasbourg; Guyot and Jeanneney of Bordeaux; Chalier of Lyons; Vanverts of Lille; Lardennois of Reims; Heitz-Boyer, Sorel, Pauchet, Dupuy de Frenelle, Petit de la Villéon, Sénéchal and Finikoff of Paris; Masini and Rottenstein of Marseilles; Lefebvre of Toulouse, and Abadie of Oran.

CHRONIC PANCREATITIS

P. Brocq of Paris and G. Miginiac of Toulouse presented a paper on "Chronic Pancreatitis," which was a résumé of an inquiry by the authors among specialists in diseases of the biliary tract, throughout the world. They emphasized that chronic pancreatitis is frequently overlooked, its diagnosis often being due to a chance intra-abdominal exploratory operation; and it is often confused with cancer, even from the histologic point of view. The diagnosis is difficult even when the organ is in hand. Then there is the slowness of the evolution of the condition, with the many remissions and sometimes spontaneous recoveries. The pancreas is frequently subject, in an acute state, to the influence of typhoid, smallpox, diphtheria, pneumonia and mumps, and, in the chronic state, to the influence of tuberculosis and syphilis. One must take account also of the propagation of lesions in the adjacent tissues; more particularly, biliary lesions. As treatment, the liberation of the pancreas from the adhesions that unite it to the adjacent organs often suffices to bring about lasting relief. Partial excisions are dangerous.

SPECIAL COMMUNICATIONS

The numerous nonofficial communications comprised the whole domain of surgery, being presented, as already stated, by physicians from the provinces and from foreign countries. There was one posthumous paper by Dr. Delagenière, who died a few days before the session, dealing with the dangers of lumbar puncture in fractures of the cranium, and with the surgical treatment of cerebral hemorrhages. Dr. Heitz-Boyer and Dr. Moure each presented a paper on the advantages of the electrical knife in surgery. Heitz-Boyer, who utilized an excellent film for his demonstration, recommended that the diathermic knife be abandoned, as it adheres to the tissues in the same manner as the thermocautery. He prefers the knife driven by an interrupted high-frequency current, which allows frank and rapid sectioning, which is just as accurate as with the ordinary knife, and offers great facility in separating the planes of cleavage and in suppressing capillary hemorrhage. Hemostasis, according to Heitz-Boyer, is due to a thrombosis of the small blood vessels caused by the high-frequency current. Nevertheless, as a precaution, he applies a ligature to the more important vessels. Mr. Calot, orthopedist of Berck, announced new signs for detecting at an early date congenital luxations and subluxations of the hip in the new-born. He examines chiefly the site occupied by the head of the femur, which normally should correspond, in projection, to the middle of the line uniting the posterior iliac spine and the pubis. Mr. Jiano of Bucharest recommended a radical treatment for hemorrhoids by means of a special compressing device. Mr. Jeanneney of Bordeaux dealt with narrowing of the rectum due to the use of radium in that region. Young of Glasgow presented two cases of bone tumor treated by resection, together with a large graft. Arnaud and Ciando of Marseilles discussed retardation of consolidation of fractures through injection into the area of colloids of silica and lime. Ferey took up the advantages of the resection of the hypogastric plexus. Mr. Chosson gave his experience with intravenous injections of calcium chloride to remedy postoperative retention of urine.

Among the operative demonstrations given in the hospitals and clinics during the course of the congress, mention may be made of that of Dr. Victor Pauchet on surgery of the digestive tract; of Drs. Marion, Chevassu and Cathelin on the surgery of the urinary passages, and of Dr. Calot of Berck on the treatment of tuberculous osteitis, arthritis and adenitis by modifying injections, without surgical intervention, which Calot regards as always dangerous.

AUSTRALIA

(From Our Regular Correspondent)

Oct. 8, 1930.

The College of Surgeons

Arrangements are being made for the primary fellowship examination of the Royal College of Surgeons of England, to be held in Australia in August or September, 1931, provided not less than twenty-five candidates are eligible.

Two examiners in anatomy and two examiners in physiology, who shall be present or past members of the board of examiners in anatomy and physiology for the fellowship, will be sent by the college from England. A professor of anatomy and a professor of physiology or such other persons as may be agreed on shall be appointed by the council from names submitted by the College of Surgeons of Australasia, to act as assessors for the examiners. The expected deficit on the examination shall be borne equally by the two colleges. The Royal College of Surgeons emphasizes the fact that the proposed scheme will be experimental only, and that it shall be free to decline to hold another examination in Australia without laying itself open to any suggestion of a breach of faith.

Considerable discussion both inside and outside the college has arisen over the rules for the conduct of fellows of the college:

1. The patient, or the person legally responsible for him, must consent in the choice made of a surgeon to perform the operation. It is to be noted that such a consent would be an essential factor in the successful suit by a surgeon for the recovery of his fee.

2. Having been selected by the patient, the surgeon is personally responsible to him for the operation. He is also responsible for, and shall conduct, the postoperative treatment, except by special arrangement with the patient.

3. The surgeon must render his account direct to the patient.

4. The surgeon must not accept his fee for an operation from the practitioner in charge of the patient, unless the surgeon forwards a receipt for the fee received direct to the patient.

5. If circumstances compel the surgeon to delegate the postoperative treatment of a patient to another practitioner, the latter must collect the fee for so doing direct from the patient. The surgeon must not pay the practitioner in charge of the patient a fee for conducting the postoperative treatment.

6. Separate accounts for the assistant, anesthetist or other necessary services must be sent to the patient, or the surgeon must state on his account form the exact amounts due for these services.

7. The assistant's standard fee shall be not more than one eighth of the operation fee, or, alternatively, not more than five guineas. When, owing to special circumstances, the assistant's fee is larger than this amount, the assistant must render his own account on his own account form.

8. The anesthetist's standard fee shall not be more than one eighth of the operation fee, or, alternatively, not more than five guineas. When, owing to special circumstances, the anesthetist's fee is larger than this amount, the anesthetist must render his own account on his own account form.

9. It is desirable that the practitioner in charge of the patient should be present at an operation on his patient. Should he have to travel any considerable distance for this purpose, the patient must be informed beforehand of the extra fee involved.

It was unfortunate that a tactless discussion on fee splitting should have been carried out in the columns of the lay press in Melbourne soon after the publication of these rules. One of the reasons for the commencement for the publication of the new medical journal, the *G. P.*, was this published attack on the ethics of the general practitioner.

A New Medical Journal

The general practitioners' section of the British Medical Association in Victoria, considering that its interests were not sufficiently served by the *Medical Journal of Australia*, has commenced publishing a journal of its own which has the terse title the *G. P.* The field that the journal covers is the reverse of academic. It deals mainly with problems of everyday general medical practice and medicopolitical development that affects the general practitioner. Original articles dealing with medical research are not included in the scope; the journal aims to act as a monthly refresher for the general practitioner on modern technic in diagnosis and treatment.

The journal is published monthly and has an Australia-wide circulation. It has had a most encouraging reception and the outlook seems to be that it will overcome the rigors of the neonatal period. The journal has adopted rather a strong attitude toward the activities of the College of Surgeons of Australasia. Some misunderstanding developed during the annual congress of the college in Melbourne early this year, and the general practitioners section took strong exception to the attitude which the college adopted toward the general practitioners.

The *G. P.* considers that the college is unsurping the position which the British Medical Association in Australia occupies as the corporate body of medical thought and action in Australia.

Diphtheria Immunization in Australia

Since the fatalities following on diphtheria immunization of children occurred at Bundaberg, Queensland, in January, 1928, when twelve children died within forty-eight hours of inoculation, the whole question of diphtheria immunization has been in abeyance. Publicity was given to the fatalities at the time and as a natural result the people were averse to subject their children to immunization. It must, unfortunately, be admitted that the report of the royal commission appointed to inquire into the cause did not completely satisfy the public as to the future safety of the process. It was a surprise to bacteriologists and clinicians also that staphylococci could provoke so fulminating an illness on subcutaneous injection. The illness did not resemble the ordinary clinical forms of staphylococcal septicemia but was an acute intoxication which either ended fatally or was overcome within a day or two in the patients who recovered. Further, as judged by animal experiments, the strain isolated was by no means that of an exceptionally virulent staphylococcus.

Recent work by Burnet and Kellaway at the Walter and Eliza Hall institute, Melbourne, on staphylococcal toxin showed that a definite exotoxin is produced by all the pyogenic staphylococci and is in all cases qualitatively identical, although varying quantitatively in differing strains. They considered that the Bundaberg tragedy shows that under certain conditions large amounts of staphylococcal toxin can be elaborated from the human body, causing death in a manner that they were able to reproduce in their experiments on animals.

The public was loath to adopt diphtheria immunization, and health, municipal and school medical authorities were tacitly agreed that the subject had better be dropped. It came as a surprise, therefore, when in May of this year the lay school committee at Virginia, near Brisbane, Australia, asked for the children to be immunized in the face of a diphtheria epidemic that was raging. This request coincided with the issue by the Commonwealth Serum Laboratories of a formaldehyde-treated diphtheria prophylactic anatoxin. The technic used in the immunization was to give the children a Schick test and at the same time to do a skin test using 0.1 cc. of a 1:20 dilution of the anatoxin. The Schick positive and anatoxin negative children were then immunized with anatoxin.

Some 200 children were thus treated without untoward effects and although no fresh requests for immunization by other communities have been made to date it is considered that the public confidence in the process has increased, especially in view of the fact that a different method from that used at Bundaberg is now being employed. A sharp epidemic of diphtheria will soon awaken the demand for immunization.

RIO DE JANEIRO

(From Our Regular Correspondent)

Oct. 15, 1930.

The Roentgenographic Picture in Tuberculosis

Dr. M. de Abreu recently lectured before the Academia Nacional de Medicina on the characteristic roentgenographic picture observed in pulmonary tuberculosis. The lesion of pulmonary tuberculosis, as represented by a spot in the roentgenogram, has a rapid development till it reaches the so-called total limit of volume for the initial period of tuberculosis. Then its development follows one of three forms of evolution: (1) The lesion may continue in a slow development (chronic tuberculosis); (2) the development of the lesion may stop and in this case the spot that represents the lesion has the same size whenever a new picture is taken; (3) the lesion may recede. The spot on the picture then appears smaller and smaller at the following roentgen examinations, till it disappears completely as the lesion is absorbed. In roentgenograms taken of patients with pneumonia it is observed that the lesions in the lung, as represented by the spot in the picture, show a constant development in size up to the seventh day. Then the lesion enters a stationary period during twenty-four or forty-eight hours and from then the lesions recede till the twelfth or fourteenth day of the disease. In cancer and in aneurysm the roentgen spot shows a constant development of the lesion during a period of twelve months. This development is rapid in cancer and slow in aneurysm. The speaker illustrated his lecture by showing charts of the curves of evolution of the lesion observed in different cases of tuberculosis, aneurysm, cancer and pneumonia.

Domestic Animals as Carriers of Yellow Fever

Dr. J. Lemos Monteiro presented before the Sociedade de Medicina e Cirurgia de São Paulo the results of experiments made in animals with the aim of determining the rôle of domestic animals as carriers of yellow fever. On inoculation into dogs, the yellow virus seems to keep its virulence in the organism of the animals for some days, so that on reinoculation into a rhesus monkey it causes a febrile reaction. Inoculation of the virus of yellow fever into cats causes, after a period of incubation, fever and other symptoms. Blood withdrawn from cats after twelve days of their attack of experimental fever, and injected into normal rhesus monkeys, causes a typical attack of yellow fever. At the end of thirty days the virus from the cat still is able to provoke the immunity of the rhesus monkey against a further inoculation of the virus. The author's results confirm those of Bauer and Mahaffy, which were obtained by means of the inoculation of certain African monkeys, and they point out the importance of domestic animals as carriers of the virus of yellow fever.

Bacillemia in Leprosy

Dr. Nelson de Souza Campos of São Paulo published recently a paper on bacillemia in leprosy in which he reported the determination of bacillemia on 100 patients with various forms of leprosy. He obtained positive results in fifty-five cases and doubtful results in eight cases. In tuberculous and mixed forms of leprosy, bacilli were found in the blood in a high rate (87.5 and 73.8 per cent, respectively) of the cases observed. In the nervous and maculo-anesthetic forms of leprosy, bacilli were found in the blood in a small percentage. The high content of bacilli in the blood of patients with tuberculous and mixed forms of leprosy points out the greater danger of contagion of these forms of leprosy over the other forms, and the necessity of a more intense campaign in hygiene and prophylaxis against them.

Intestinal Obstruction Caused by Ascarids

Dr. Motta Mais reported recently the case of a girl, aged 3, who presented a clinical picture of peritonitis and intestinal obstruction. An exploratory laparotomy revealed a large amount of green, flocculent and putrid liquid in the abdomen. Parts of the ileum were dilated and a mass of white cords was seen inside, which on examination proved to be bundles of ascarids. The ileum was gangrenous in places. An enterostomy was performed and a large number of ascarids removed. About 20 cm. from the first occlusion there was another mass formed by a bundle of ascarids. Ninety-two worms were removed. The smallest parasites were 15 cm. and the longest 30 cm. long.

UKRAINE

(From Our Regular Correspondent)

Odessa, Oct. 20, 1930.

Conference of Physiologists

The fourth conference of physiologists, held in the city of Charkov, May 20-26, was characterized by many interesting reports. In the plenary sittings of the conference much attention was paid to the questions of weariness and nutrition. Papers were read by Professor Kekcheev of Moscow on "Weariness and Methods for Its Study"; Professor Kagan of Charkov, "Energetics of Work and Weariness"; Professor Bernstein of Moscow, "The Present Biomechanical Method and the Study of Weariness." Professor Palladine of the Ukrainian Biochemical Institute, Charkoff, in his report on "Biochemistry and Weariness," explained the biochemical processes that take place in the brain, during the state of weariness.

The session gave much attention to questions of nutrition. "Albumin Problems in Nutrition" was discussed by Professor Zbarsky of Moscow, and "Vegetables and Canned Vegetables as a Source of Vitamins" by Professor Cherkess of Odessa. Other reports were concerned with the organization of public nutrition. According to the five year plan of construction of the Soviet Union, it is proposed to open so many eating houses and like establishments that, before the end of the year 1933, half of the population will get their food there. The scientific study of all questions connected with public nutrition has begun only recently, and at this conference these questions were considered for the first time. Therefore, in its resolution the session made a special point as to the solving of the problem of public nutrition in the shortest possible time.

The conference was much interested in the paper of Professor Zeleny of Leningrad on "The Rôle of Subcortical Centers," which was accompanied by moving pictures. The author, experimenting on dogs which had their cerebrums removed by the Holz method, worked out conditional reflexes, defensive and phonetic. These dogs also could differentiate the sources of irritation. Professor Zeleny thinks that even a total absence of conditional reflexes in animals that have no pallium does not prove that normal animals have no associative centers in their subcortical centers.

Dr. Brouchanenko of Moscow demonstrated to the conference his preparation of a dog's head separated from its trunk. By joining the head of a dog, separated from its trunk, to a system of pumps and apparatus for keeping up artificial circulation and breathing, the author found that this head maintains for about five or six hours a series of central nervous functions. It maintains reflexes from the peripheral apparatus and has its automatic reactions of an endogenous character. The dog's head separated from its trunk keeps the winking reflex, when the eyelid or cornea is touched. The change of oxidation in blood brings forth yawns, a wide opening of the mouth and other manifestations analogous to suffocation. They disappear when oxidation is improved. When it is stopped, the dog's head shows manifestations of agony and death.

In the section of biochemistry, the foreign guests were Professor Thomas of Leipzig and Professor Winterstein of Breslau, whose papers were of great interest to the soviet physiologists. The next conference will be held in Tiflis (Caucasus) in 1932.

The Campaign Against Cancer in Ukraine

The progressive increase in the Ukrainian Socialist Soviet Republic is a fact that attracted the attention of physicians even at the time when the country was beginning to recover after the civil war. The Surgical Society of Odessa in 1922 was the first in Ukraine to raise the question about taking proper measures. Four years later in Moscow the first all-union conference to consider means of combating cancer took place. Because of a deficiency of resources it was impossible then to realize the plans proposed. Until recently, the combat against cancer has not come out of the limits of individual investigations and experimental work. Only this year has it been placed on a solid basis. According to the plan of the people's commissariat of health, the whole country will be divided into four districts, in each of which there will be organized an institute for the study of cancer. There already exists such an institute in Charkov and soon similar institutes will be opened in Kiev, Odessa and Dniepropetrovsk (formerly Ekaterinoslav).

The roentgen-radiologic institute for the study and prevention of cancer will comprise: 1. A scientific department (theoretical and experimental), which will study the origin of cancer and give attention to the correlation between cancer and professional diseases. 2. A clinical department for administering aid to patients by surgery and by radium and roentgen rays. 3. A pedagogic department to give special courses for physicians, where methods of early diagnosis and cure will be studied. 4. A special department to organize public lectures and theatrical plays, to publish posters and popular pamphlets and books, and to issue moving pictures with the aim of popularizing the struggle against cancer. The "Ukraine film," a state organization, will undertake in Odessa, work in conjunction with this department of the anticancer institute, on popular films and also scientific films for physicians. 5. The statistical department, which will collect the result of the work of the district institute and of the country and district anticancer stations. The latter will be formed in every rural hospital. The statistical department will not only receive all the materials from these institutions but compile genealogical lists of cancer patients. An all-union anticancer session will be held in Charkov in February, 1931. Its aim is to coordinate all the means of fighting cancer.

BERLIN

(From Our Regular Correspondent)

Oct. 20, 1930.

Eugenics and the Birth Rate

In the beginning of the eugenic movement, eugenists in America decided to make experiments to discover whether hereditary taints or defects could be eradicated by control measures. As Dr. Scheumann recently brought out at the meeting of the Vereinigung öffentlicher Eheberatungsstellen, in Dresden, eugenists demanded, at that time, that persons who, with pathologic hereditary tendencies, were a menace to future offspring, should be prohibited from marrying. Marriage should, it was urged, be made dependent on the securing of a special permit. The expectations aroused by these measures were not, however, realized. Those concerned avoided the issue by marrying in another state in which no such restrictions were known: or, if possible, they concealed their disease. Many eugenists in Germany supported the view that the presentation of a certificate as the basis for securing a marriage license was not only desirable but necessary. The Prussian ministry of public welfare, in 1926, by an order addressed to the district health officers, advocated the creation of examination centers for the issuance of marriage permits. No force could be used to compel marriage candidates to submit to a medical examination, as there was no basis in the federal laws for such a measure. Other eugenists followed a different course. Instead of seeking the enactment of new laws, they sought to clarify the minds of the masses by endeavoring to strengthen the feeling of responsibility for their own health and the health of their offspring. This trend received the endorsement of Dr. Scheumann, who conceived of a comprehensive biologic consultation of adults both before and during marriage, and recommended that certification be placed in the hands of physicians and that the various welfare centers be brought under one uniform system. He referred to Saxony, which, in 1927, brought the marriage consultation centers into a uniform system with public welfare. The marriage consultation centers in Saxony have achieved good results because they rest on voluntary acquiescence. Thus, Professor Fetscher, the director of the municipal marriage consultation center in Dresden, reported that, in three years, out of 2,200 applicants, he was able to induce feebleminded or mentally ill persons, in 123 cases, to renounce the idea of having children, and many of them submitted to sterilization.

A service was rendered by Prof. Robert Wilbrandt, of the Dresdener Technische Hochschule, who pointed out the connection between the decline in the birth rate and the existing economic status. It has been found that immoderate wealth is not conducive to an increase in the birth rate. However, it must be recalled that modern medical technic now affords wide circles the opportunity of limiting the number of children in a family. It has become the "custom" to have only one child or even none. In southern France there are said to be areas that are almost depopulated, and it is well known that childless peasant couples often go to Switzerland to select an heir to their property. It is evident that the birth rate is closely connected with economics. Germany still has a large population in relation to its resources. It is in a critical position, from which it can be rescued only in case the world's markets, through reductions in tariff duties, are thrown open to export trade to a greater extent than at present, and thus enable it to accumulate capital. Something must be done to increase the supply of intellectual leaders, for only those who possess preeminent physical and mental equipment can maintain themselves in the economic struggle. All others must, sooner or later, become dependent on community or state aid.

It follows that our existence depends on the begetting of outstanding individuals possessing valuable hereditary qualities, for whom, then, the most favorable world environment must be created.

At present, Germany lacks all the preconditions for increasing the birth rate. While the total value of Germany's exports reaches a respectable sum, it is bought, nevertheless, through the nationalization of production, which, in turn, produces at times a vast army of jobless men. Duties, instead of declining, are being increased. The accumulation of capital has become much more difficult. Instead of endeavoring constantly to improve the quality of our schools and thus lay the foundation for the training of intellectual leaders, public education in the rural districts is being neglected. It is not surprising, therefore, that, in closing his address, Wilbrandt expressed himself in these terms: "If we consider soberly and dispassionately the present status of economic affairs in Germany, we are forced to conclude that, as a matter of fact, it is indeed fortunate that the population of the country is increasing so slowly."

Meeting of Psychoanalytic Society

At the second session of the Deutsche psychoanalytische Gesellschaft in September, in Dresden, two introductory public addresses preceded the scientific work of the session. Dr. Meng of Frankfort-on-Main spoke on "Psychic Hygiene on a Psychoanalytic Basis." He gave a summary of the service that psychoanalysis performs for the modern physician and the teacher in his relation with his protégés. Frau Dr. Horney of Berlin delivered an address on "The Mutual Distrust of the Sexes," which awakened great interest. What she presented had special value, for in her were combined the physician, scientifically trained, and a woman who was familiar with the emotions and feelings that are peculiar to her sex. In the scientific sessions, Dr. Boehm and Dr. Fenichel of Berlin discussed the Edipus complex. The titles of these addresses were: "The History of the Edipus Complex" and "Special Forms of the Edipus Complex," respectively. Dr. Reich of Vienna dealt with "Psychoanalysis and Character Formation," and Dr. Landauer of Frankfort-on-Main discussed "The Individual and His Fellowships." In the evening there were two more public addresses, by August Aichhorn of Vienna on "Guidance in Educational Matters," and Groddeck of Baden-Baden on the "Struwelpeter," which, for more than fifty years, has afforded amusement to countless German children. The "Struwelpeter," written by a physician by the name of Hoffmann, is a picture book with charming verses, adapted with great skill to the child's understanding. Even this charming book has to be dissected by the psychoanalysts!

Industrial Hygiene Society

At the annual session of the Deutsche Gesellschaft für Gewerbehygiene, in Breslau, September 24-25, the chief topic on the program was "Determination of the Degree of Disability in Occupational Diseases." The official paper on "Determination of Degree of Disability in Severe Pneumonoconiosis" was presented by Reichmann of Bochum, who described the development of the disease as revealed by the roentgenogram, and its diagnostic differentiation from tuberculosis. He reported statistics on the association of silicosis and tuberculosis. The mild cases of silicosis presented 8.7 per cent of tuberculosis; the severe cases, 30 per cent. However, tuberculosis was present in 75 per cent of severe cases of silicosis that came to necropsy. The clinical symptoms of pneumonoconiosis are comparatively insignificant. The degree of disability is determined by the functioning of the lung and the earning capacity of the examinee. In severe silicosis, the compensation should be at least 50 per cent of the total. If severe pneumonoconiosis is associated with tuberculosis, the latter becomes, in matter of fact, a compensable disease. The regulations concerning the granting of compensation for severe pneumonoconiosis should be extended to further industries.

Jadassohn and Mayer of Breslau offered a paper on the second official topic, "Determination of Degree of Disability in Skin Diseases of Industrial Origin." Most eczemas are of industrial origin. Next in order come the effects of rays and cancer-like changes. The delimitation of eczema as a disease entity was discussed. Industrial eczemas are due for the most part to hypersensitiveness, which is seldom congenital but is acquired in the industries through sensitization. The so-called incubation time varies within broad limits—up to ten years and more. Industrial eczemas are not in themselves characteristic. In the search for the offending substance, the irritants proposed by Jadassohn are useful. They are best employed in a suitable clinic. On the basis of the existing laws, only a few skin diseases of industrial origin are compensable. Hypersensitive persons are granted a compensation for loss of time resulting from the need of changing their occupation. Intimate contact with tar, pitch and arsenic may cause, in addition to eczemas, also sensitization to light and cancerous changes.

Cobet of Breslau followed Jadassohn and Mayer, and discussed the determination of the degree of disability in infectious diseases affecting the personnel in attendance on the sick. Of the acute infectious diseases, the most important are scarlet fever and diphtheria—but also sore throat with its sequels. Even in pneumonia, the possibility of infection cannot be denied. Proof of negligence does not entail loss of right to compensation. Certain difficulties are encountered in connection with claims for compensation owing to alleged indirect infection through contact with inanimate objects or germ carriers. In every case, the facts must be carefully inquired into in order to determine the possibility of disease. Germ carriers are not entitled to compensation, as they are not sick; they may not be able to continue in their regular occupation, but they are not otherwise incapacitated. Of the chronic infectious diseases, tuberculosis occupies first place. The possibility of a previously existing latent infection makes more difficult the demonstration of an occupational contamination. A thorough roentgenologic examination of the personnel on entering a new service will in the future make the determination of the degree of disability much easier. Next in order come syphilis, gonorrheal conjunctivitis and trachoma.

Marriages

FRANCIS M. B. SCHRAMM, Johnstown, Pa., to Mrs. Jane Brooks Staman of Mount Pleasant, September 22.

PHILLIP H. SIGRIST, New Philadelphia, Ohio, to Mrs. Lillian M. Ganiard of La Grange, Ind., October 22.

HARRY EVERETT ALDERSON, San Francisco, to Miss Cordelia Church Bishop, in Oakland, September 26.

HAROLD D. VAN SCHAICK, Jacksonville, Fla., to Miss Maude Coney of Savannah, Ga., September 10.

CHARLES PATTERSON ELDRIDGE to Miss Lucy C. Cheatham, both of Raleigh, N. C., September 28.

RICHARD OLNEY RUSSELL to Miss Louise B. Taylor, both of Birmingham, Ala., October 23.

ELBERT W. JACKSON, Paducah, Ky., to Miss Eleanor Johnson of Kansas City, Mo., October 3.

NORMAN L. SCHMIDT, New York, to Miss Dorothy Fain of Nashville, Tenn., August 13.

WENDELL A. KILLINS, Omaha, to Miss Genevieve Quale of Rochester, Minn., October 4.

WILLIAM ROY DILLINGHAM to Miss Zara Simpson, both of Salina, Kan., August 1.

Deaths

Edgar J. George, Chicago; Chicago Homeopathic Medical College, 1890; Hahnemann Medical College and Hospital, Chicago, 1905; formerly professor of ophthalmology, Hahnemann Medical College and Hospital; member of the American College of Surgeons; aged 67; on the staff of the Chicago Memorial Hospital, where he died, October 21, of coronary thrombosis.

Frederic D. Huntington Coerr, New York; Columbia University College of Physicians and Surgeons, New York, 1904; member of the Medical Society of the State of New York and the American College of Surgeons; served during the World War; on the staff of the New York City Hospital; aged 55; died, October 9, at Metuchen, N. J., of heart disease.

William Weed Van Baun, Philadelphia; Hahnemann Medical College of Philadelphia, 1880; professor emeritus of pediatrics at his alma mater; formerly on the staffs of the Hahnemann Hospital, West Philadelphia Homeopathic Hospital, Woman's Southern Homeopathic Hospital and St. Luke's Hospital; aged 72; died, October 6, of cerebral hemorrhage.

John Philip Gilligan, O'Neill, Neb.; Albany (N. Y.) Medical College, 1890; member and past president of the Nebraska State Medical Association; formerly secretary of the Holt County Medical Society; state senator, 1906-1908; for eighteen years member of the school board; at one time mayor; aged 63; died, September 28, of progressive muscular atrophy.

Ernest Lewis McEwen ⊕ Chicago; Rush Medical College, Chicago, 1897; associate clinical professor of dermatology at his alma mater; member of the American Dermatological Association; on the staffs of St. Francis Hospital, Evanston, Home for Destitute Crippled Children and the Presbyterian Hospital, Chicago; aged 63; died, October 30, of heart disease.

Henry Arnold Alderton, Palo Alto, Calif.; Medical Department of Columbia College, New York, 1885; member of the American Otological Society; formerly on the staffs of the Brooklyn Eye and Ear Hospital, Kingston Avenue Hospital, Kings County Hospital, and the Bushwick Hospital, Brooklyn; aged 66; died, September 30, of arteriosclerosis.

Richard Mark Brown ⊕ Ogden, Utah; Columbia University College of Physicians and Surgeons, New York, 1911; member of the American Roentgen Ray Society and the Radiological Society of North America; served during the World War; aged 45; died, September 12, in a hospital at Salt Lake City, following an operation for cholelithiasis.

Edward S. Kelly, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1897; member of the Louisiana State Medical Society; chief of the sanitary division of the city board of health; formerly a druggist, and member of the parish school board; aged 61; died, October 2, of chronic myocarditis and nephritis.

John Donald MacRae ⊕ Asheville, N. C.; University of Nashville (Tenn.) Medical Department, 1897; member of the Radiological Society of North America and the American College of Radiology; president of the Buncombe County Medical Society; aged 56; died, September 6, of injuries received in an automobile accident.

Charles Albert Bigler, Jr., Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1902; formerly professor of rectal diseases at his alma mater; member of the American College of Surgeons; aged 55; died, August 15, in the U. S. Naval Hospital, of carcinoma of liver, chronic arthritis and myocarditis.

Walter Lowrie Hunt, Bangor, Maine; Medical Department of Columbia College, New York, 1875; member of the Maine Medical Association; past president of the Penobscot County Medical Society; on the staff of the Eastern Maine General Hospital; aged 81; died, June 10, of carcinoma of the pancreas and liver.

Marcus Duke Smith, Cambridge, Md.; University of Maryland School of Medicine, Baltimore, 1914; served during the World War; formerly on the staff of the Cambridge Hospital; aged 38; died, July 25, in the U. S. Veterans' Hospital, Oteen, N. C., of pulmonary tuberculosis and tuberculous laryngitis.

Stephen Cambreleng Powell, Newport, R. I.; Yale University School of Medicine, New Haven, 1864; Medical Department of Columbia College, New York, 1864; member of the Rhode Island Medical Association; on the staff of the Newport Hospital; aged 87; died, in October, of chronic myocarditis.

Thomas Franklin Dornblaser ⊕ Amboy, Ill.; Medical Department of the University of Illinois, Chicago, 1908; veteran of the Spanish-American War; formerly member of the school board; one of the medical directors of the Amboy Public Hospital; aged 51; died, September 28, of heart disease.

Emery Szamosi ⊕ Bridgeport, Conn.; University of Budapest, Hungary, 1919; served during the World War; on the courtesy staffs of the Bridgport Hospital and St. Vincent's Hospital; aged 34; died, September 18, of septic arthritis, endocarditis and pulmonary embolism.

William Frederick Brooks, Bagwell, Texas; University of Michigan Homeopathic Medical School, Ann Arbor, 1888; member of the State Medical Association of Texas; aged 68; died, June 29, in Battle Creek, Mich., of aortic insufficiency, hypertension and arteriosclerosis.

Robert Thurlow Hood ⊕ Pittsburgh; University of Pittsburgh School of Medicine, 1914; member of the American College of Physicians; served during the World War; aged 43; on the staff of the Western Pennsylvania Hospital, where he died, October 5, of psoas abscess.

Charles Eugene Perry, West Hartford, Conn.; Tufts College Medical School, Boston, 1909; member of the Massachusetts Medical Society; formerly superintendent of the New Hampshire State Sanatorium, Glencliff; aged 47; died, July 26, in Hartford, of heart disease.

George W. Kinard, Leacock, Pa.; Jefferson Medical College of Philadelphia, 1887; member of the Medical Society of the State of Pennsylvania; aged 69; died, September 19, in the Lancaster (Pa.) General Hospital, following an operation for hypertrophy of the prostate.

John Philip Nicodemus, Indianapolis; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; member of the Indiana State Medical Association; served during the World War; aged 47; died, October 8, of a self inflicted bullet wound.

Frederick Percy Lawton, Traverse City, Mich.; University of Michigan Medical School, Ann Arbor, 1897; member of the Michigan State Medical Society; member of the school board for twelve years; aged 60; died, September 27, of intestinal obstruction.

Julius Clegg Hall ⊕ Albemarle, N. C.; University College of Medicine, Richmond, 1899; secretary and past president of the Stanley County Medical Society; aged 56; on the staff of the Yadkin Hospital, where he died, October 3, of streptococcic sore throat.

William J. Madsen ⊕ Millers Falls, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1920; Missouri College of Medicine and Science, St. Louis, 1922; aged 45; died, July 17, in Boston, of carcinoma of the rectum.

William Allen Bush, Winchester, Ky.; Kentucky University Medical Department, Louisville, 1905; member of the Kentucky State Medical Association; served during the World War; aged 60; died, September 28, of acute nephritis.

Lewis Samuel Dietrich, Stevens Point, Wis.; Northwestern University Medical School, Chicago, 1906; member of the State Medical Society of Wisconsin; aged 59; died, September 22, of nasal hemorrhage and prostatectomy.

William A. Pitzele, Lorain, Ohio; University of Illinois College of Medicine, Chicago, 1903; member of the Ohio State Medical Association; on the staff of St. Joseph's Hospital; aged 53; died, November 1, of uremia.

Charles M. Sebastian, Martin, Tenn.; University of Louisville (Ky.) School of Medicine, 1870; member of the Tennessee State Medical Association; aged 80; died, September 28, of pernicious anemia and arteriosclerosis.

Isaac Deering Harper, South Windham, Maine; Medical School of Maine, Portland, 1885; member of the Maine Medical Association; aged 70; died, August 4, in Gorham, of chronic myocarditis and coronary thrombosis.

Alphonso Nelson Witham, Westbrook, Maine; University of Vermont College of Medicine, Burlington, 1885; member of the Maine Medical Association; aged 72; died, August 13, in a local hospital, of arteriosclerosis.

William C. Lipscomb, Crockett, Texas; University of Louisville (Ky.) School of Medicine, 1883; Medical Department of the University of Louisiana, New Orleans, 1891; aged 73; died, October 1, of carcinoma.

William Thomas Chinn, Wellsburg, Iowa; College of Physicians and Surgeons, Keokuk, 1890; aged 78; died, October 5, in the Ellsworth Hospital, Iowa Falls, following an operation on the gallbladder.

Edward Wier Smith ⊕ Meriden, Conn.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1882; member of the American College of Surgeons; aged 76; died, October 8, of coronary thrombosis.

John Nicol Vroom ⊕ Denver; Denver College of Medicine, 1889; Rush Medical College, Chicago, 1890; aged 65; died, August 3, in St. Joseph's Hospital, of carcinoma of the duodenum.

Robert Gustav Boehm, Chicago; Loyola University School of Medicine, Chicago, 1916; aged 38; was killed, October 22, when the automobile in which he was driving was struck by a street car.

Almon S. Shafer, Columbia, Iowa; State University of Iowa College of Medicine, Iowa City, 1889; aged 72; died, September 25, in Solon Springs, Wis., of carcinoma of the prostate.

Stanley Sevier Warren, Columbus, N. M.; University of Pennsylvania School of Medicine, Philadelphia, 1894; aged 59; died, September 24, in Los Angeles, Calif., of chronic myocarditis.

Edward Kirby Morris ⊕ Merrill, Wis.; Rush Medical College, Chicago, 1894; on the staff of the Holy Cross Hospital; aged 63; died, August 26, of chronic nephritis and myocarditis.

Peter J. Koerper, Wilmette, Ill.; Rush Medical College, Chicago, 1903; Spanish-American War veteran; aged 52; died, September 14, of cirrhosis of the liver and chronic nephritis.

Michael Coleman Ryan, Coaldale, Pa.; Jefferson Medical College of Philadelphia, 1888; aged 76; died, May 17, in the Hazleton (Pa.) State Hospital, of carcinoma of the neck.

David Bruce Anderson, Paris, Ky.; Louisville Medical College, 1902; member of the Kentucky State Medical Association; aged 53; was accidentally drowned, October 3.

William Arthur Martin, San Francisco; Universität Heidelberg Medizinische Fakultat, Heidelberg, Baden, Germany, 1882; aged 74; died, September 7, of heart disease.

Walter Edwin Walker ⊕ Burlington, N. C.; Medical College of Virginia, Richmond, 1903; aged 50; died, October 3, in a local hospital, of cerebral hemorrhage.

Alfred Vincent Wepfer, Oakland, Calif.; Stanford University School of Medicine, San Francisco, 1923; aged 47; died, August 4, in Yreka, of appendicitis.

John Edwin Stillwell ⊕ New York; Medical Department of Columbia College, New York, 1875; aged 77; died suddenly, October 6, of coronary thrombosis.

Althea Edmund Bradshaw, Halo, Ind.; Kentucky School of Medicine, Louisville, 1878; aged 80; died, September 6, of carcinoma of the stomach.

Byron Leaford Hale, Cherryvale, Kan.; Kansas Medical College, Topeka, 1900; aged 64; died, September 17, of carcinoma of the prostate.

James Thomas Carter, Walhalla, Texas; Medical Department of the University of Louisiana, New Orleans, 1878; aged 75; died, June 24.

Charles Herbert Lowell ⊕ Carmel, Calif.; Cooper Medical College, San Francisco, 1896; aged 55; died, July 30, at Port Lobos Gate.

James Egbert ⊕ Indianapolis; Medical College of Indiana, Indianapolis, 1898; aged 59; died, October 8, of uremia and acute nephritis.

Edward R. Fletcher, Decoto, Calif.; Rush Medical College, Chicago, 1870; aged 85; died, August 6, of chronic myocarditis.

John Hazlewood, New Albany, Ind.; Kentucky School of Medicine, Louisville, 1883; aged 66; died, August 26, of lobar pneumonia.

Henry Logan Giles, Chicago; University Medical College of Kansas City, Mo., 1896; aged 57; died, July 24, of arteriosclerosis.

Leander Zebina Skinner, Loudonville, Ohio; Baltimore Medical College, 1894; aged 63; died, October 10, of angina pectoris.

Nathan Kaufman, Brooklyn; Long Island College Hospital, Brooklyn, 1915; aged 47; died, October 1, of hypostatic pneumonia.

James Gillespy Strawn, St. Louis; Meharry Medical College, Nashville, Tenn., 1923; aged 46; died, July 31, of sunstroke.

Gavin Shearer Herbert ⊕ Los Angeles; College of Medicine and Surgery, Chicago, 1909; aged 44; died, August 12.

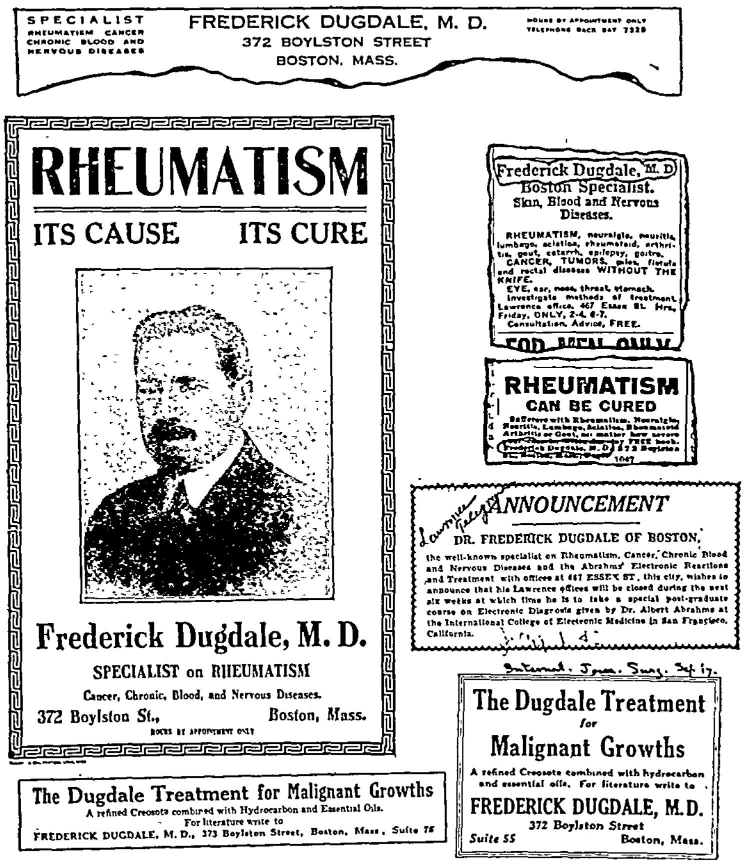
Robert Creswell Black, Denver; Emory University School of Medicine, Atlanta, 1917; aged 42; died, August 28.

Bureau of Investigation

THE DUGDALE LIBEL SUIT

Frederick Dugdale, Abrams and Koch Disciple, Loses His Libel Suit Against the Lowell Sun

Frederick Dugdale, M.D., of Lowell and Boston had his license to practice medicine in the State of Massachusetts revoked April 18, 1929, for "gross misconduct in the practice of his profession." There were two hearings in the revocation proceedings—one in January, 1928, at which time Dugdale obtained a writ of mandamus against the state board, and a second one, a little more than a year later, at which time the license was revoked.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Lawrence [illegible]

ANNOUNCEMENT
DR. FREDERICK DUGDALE OF BOSTON,
the well-known specialist on Rheumatism, Cancer, Chronic Blood and Nervous Diseases and the Abrahms' Electronic Reactions and Treatment with offices at 467 ESSEX ST, this city, wishes to announce that his Lawrence offices will be closed during the next six weeks at which time he is to take a special post-graduate course on Electronic Diagnosis given by Dr. Albert Abrahms at the International College of Electronic Medicine in San Francisco, California.

Internat. Jour. Surg. Sept 17.

The Dugdale Treatment for Malignant Growths
A refined Creosote combined with Hydrocarbon and Essential Oils.
For literature write to
FREDERICK DUGDALE, M. D., 373 Boylston Street, Boston, Mass., Suite 75

The Dugdale Treatment
for
Malignant Growths
A refined Creosote combined with hydrocarbon and essential oils. For literature write to
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372 Boylston Street
Suite 55 Boston, Mass.

Greatly reduced reproductions of some of Dugdale's advertising — letterhead, rheumatism-cure booklet and advertisements, Abrams' "electronic reactions," and his own alleged cancer cure.

The Lowell (Mass.) *Sun*, at the time of the first hearing, published an account of that hearing and stated that the charges against Dugdale grew out of alleged professional misconduct on his part in the treatment of a Mrs. Caton, who subsequently died of cancer. As a result of this publication, Dugdale brought suit against Mr. John H. Harrington, publisher of the *Sun*, charging libel and demanding $50,000 damages. The case came to trial a few weeks ago and lasted about a week. The jury, after less than two hours of deliberation, brought in a verdict in favor of the newspaper.

Frederick Dugdale, according to our records, was born in 1880 and was graduated in 1903 by the Baltimore Medical College. For some years he advertised as a "specialist" in "skin, blood and nervous diseases" and operated a mail-order "rheumatism cure." When the large economic possibilities of the Abrams quackery became obvious, Dugdale was one of the disciples of that cult. In 1921, his name appeared as "President" of the "Allied Medical Associations of America," one of the "twilight-zone" organizations patronized by faddists and quacks. His name also appeared as one of the officers of the "Medical Society of the United States," which was originally created to organize fee-splitters but later became a "society of protest against the autocracy of the A. M. A." Still later Dugdale's name was found as "Chairman" of the "Board of Trustees" of the "American Association for Medico-Physical Research," organized originally by the outstanding quack of the century, Albert Abrams, under the title, "American Association for Spondylotherapy."

Frederick Dugdale is, of course, not a member of his local medical society nor of the American Medical Association. Yet, at the time of the revocation hearings in 1929, he is said to have stated under oath that he was a member of the American Medical Association, and to have produced a membership card from the American Medical Association made out in his name. It seems that due to a clerical error, Dugdale was sent a membership card instead of a receipt for a subscription to THE JOURNAL. As soon as this error was discovered, notice was served on Dugdale, by registered mail, to return the card sent to him in error. To this day the card has not been received by the American Medical Association.

For some years, too, Dugdale had his own "cancer cure," which was vaguely described in an article that appeared under his name in the *Charlotte Medical Journal* in 1918 as a mixture of "specially prepared creosote with a high guaiacol content, scientifically combined with hydro-carbon and essential oils, presenting a mixture which possesses bactericidal and germicidal properties." Still later, as the Koch "cancer cure" became a wonderful money-maker, Dugdale became a Koch disciple and in the recent libel suit the Koch "treatment" figured largely.

The newspaper's defense of the publication of the abstract of the first hearing in the revocation proceedings against Dugdale was that such an abstract was privileged. The newspaper also held that its reference to the case of a Mrs. Caton, who had been treated by Dugdale by the Koch method for treatment, was justified because it was true. It appeared that Mrs. Caton, when in the last stages of cancer, went with her husband and other relatives to Dugdale, who, according to the report, told the members of the woman's family, "I can see no reason why I cannot make her a well woman." He continued to treat the poor woman and received reports regarding her condition up to within two weeks of her death, and until the last appears to have insisted that the poor woman was improving.

The attorney for the Lowell *Sun* introduced a number of reputable physicians as witnesses. Four Detroit physicians, who had investigated the Koch "treatment," went to Lowell to testify: Drs. Frank A. Kelly, James E. Davis, J. T. Watkins and Clarence Owen. In addition, Drs. Timothy J. Leary, Marshall L. Alling, Charles Shanks and George H. Bigelow also appeared for the defense. One of the most important witnesses was Dr. Joseph Colt Bloodgood, who was badgered by Dugdale's attorney in a manner common to such trials. Dr. Bloodgood was asked whether he was known as the "publicity agent for the A. M. A.," whether he was being paid for appearing in the case, whether he received any compensation from the American Medical Association, and whether he expected to get his expenses. Dr. Bloodgood assured the attorney for Dugdale that he did not receive compensation from the American Medical Association, that he was not the publicity agent for the A. M. A., that he would not accept any pay for coming to Lowell to testify, and that there had been no promise even to pay his traveling expenses.

In addition to the purely medical testimony, there was also some interesting testimony from Mr. Austin Lescarboura, former managing editor of the *Scientific American*, on the physical characteristics of the Albert Abrams "mystery box"—the so-called oscilloclast. Mr. Lescarboura was one of several experts who, some years ago, made a thorough examination, from the physical point of view, of Abrams' hocus-pocus. He brought out that the committee of which he was a member made extensive and exhaustive tests to determine the physical phenomena claimed for it. The sum and substance of the findings of this committee were to the effect that there was no basis in fact for any of the Abrams claims in this matter. Mr. Frank Goldman, the attorney for the Lowell *Sun*, in his closing arguments, characterized Dugdale as a quack. Mr. John J. Higgins, Dugdale's attorney, apparently admitted the fact when he retorted that even a quack could be libeled as well as another man.

Not the least interesting feature of the entire case was the complaint on the part of Dugdale's attorneys, as quoted in the published reports of the suit, that Koch, whose alleged cancer cure was administered by Dugdale, "had run out on us" and refused to come to Lowell to testify.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

CARBON MONOXIDE POISONING

To the Editor:—Recently I was called to see a man lying dead in front of his garage. He had been discovered in the garage seated in his automobile, the engine running, and had been dragged out probably dead. The small side door of the garage was about half way open and the main doors were closed, he presumably having gone in to test the engine. There was no reason to suspect suicide and after careful investigation the coroner's physician granted a death certificate giving the cause as carbon monoxide poisoning due to inhalation of exhaust gases from the automobile engine. I had examined this man at fairly regular intervals during the past ten years, for check up on his physical condition, and had never found any organic or even minor disturbances. The last examination was about six months before his death. 1. What are the conditions at necropsy in carbon monoxide poisoning? 2. What changes can be found in the blood of a person dead of this condition; how soon would such blood examination have to be made after death and what are the tests applicable in such a case? 3. Are there any known external evidences of the skin, mucous membrane or the eyes of such a victim, or any known evidence that might clinch a positive diagnosis as to the cause of death from exhaust gas poisoning from an automobile engine? 4. Granted that the small side door of this garage was open at least half way, would gas accumulation be sufficient to be lethal?

M.D., New Jersey.

Answer.—1. After death from carbon monoxide poisoning the surface of the body is usually pinkish or red, which is more pronounced in the dependent parts. The blood is usually fluid, coagulates slowly, and is cherry red. The mucous membranes in the pharynx and stomach may be reddened. There may be small hemorrhages into the pleura, also pulmonary edema with bright red froth exuding from the cut surface of the lung. In typical cases all tissues are redder because of carbon monoxide hemoglobin. There may be, especially after prolonged breathing of carbon monoxide, punctiform hemorrhages and softening in the brain, particularly in the lenticular nucleus. It has been said that after monoxide poisoning from automobile exhaust gas there may be little change in the skin, because it is thought that death may have occurred rapidly.

2. The essential change after death from monoxide poisoning is the presence of carbon monoxide hemoglobin, which may be detectable for some time. The test relied on principally by the United States Bureau of Mines is based on the fact that when normal blood diluted with water is mixed with a solution of tannic and pyrogallic acids a light brown suspension is formed in a few minutes, while blood containing carbon monoxide hemoglobin forms a light carmine suspension. The percentage of saturation of carbon monoxide in the blood can be determined by using a set of standards of different colors corresponding to known amounts of carbon monoxide in combination with hemoglobin. This apparatus, which is simple enough to be used without special training, may be obtained from the Mines Safety Appliance Company, Pittsburgh.

3. This question is covered largely by answers 1 and 2. So far as is known, the actual cause of death from exhaust gases from automobile engines is poisoning by carbon monoxide.

4. While the question cannot be answered definitively on the basis of the information at hand, it is altogether reasonable to conclude that fatal monoxide poisoning might develop under the condition described. It should be borne in mind, however, that no one can tell the internal conditions of a dead body without a proper postmortem examination.

The symptoms and signs of carbon monoxide poisoning in garages do not differ, so far as known, in any essential from the symptoms and signs of carbon monoxide poisoning under other conditions. A recent article bearing directly on the case described by the correspondent is by William D. McNally (Sixty-Three Deaths from Carbon Monoxide Poisoning in Private Garages, *Archives of Pathology* 5:43 [Jan.] 1928). Public Health Bulletin 195, 1930, by R. R. Sayers and Sara J. Davenport, gives a good review of carbon monoxide poisoning; this bulletin can be obtained for 20 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C. A valuable report is that of the Committee on Poisonous Gases of the American Medical Association, "Dangers of Carbon Monoxide Poisoning and Measures to Lessen These Dangers," The Journal, Jan. 18, 1930. (Reprints may be obtained on receipt of 15 cents.)

TREATMENT OF ELONGATION OF COLON

To the Editor:—I have a patient whose descending colon is one and one-half times as long as it should be, the abnormal length forming a loop. Symptoms are of Glenard's disease with constipation and a tendency toward infection of feces in the loop and obstruction. Will you kindly supply me with definite dietary and other aids in treatment. I should also like to know the relative frequency of the condition. The man was told to have the loop removed but I have advised against such a procedure at present. Print inquiry if you wish, but please use initials only.

M.D., Pennsylvania.

Answer.—The condition described is frequent enough to be a rather common occurrence in routine gastro-intestinal roentgen examinations. Unless there are symptoms present, the general opinion seems to be that no treatment is necessary. Certainly surgery should not be instituted, at least until after a thorough and efficient medical regimen. The usual methods of handling visceroptosis are advisable. The patient is generally put at bed rest with the foot of the bed elevated. If, as is usually the case, the patient is undernourished, food is urged to the point of a definite gain in weight. In the beginning, the bowels are handled with enemas of olive oil. After from two to three weeks of bed rest the patient is allowed up, and passive and active exercises are instituted to increase the tone of the abdominal walls. At this time a diet should be arranged to remove the constipation. Different physicians employ different kinds of anticonstipation diets. McLester's "Nutrition and Diet in Health and Disease" may be referred to for further assistance in the diet.

TREATMENT OF PERSISTENT CONJUNCTIVAL INFECTION

To the Editor:—Will you kindly venture a conjectural diagnosis of the following ophthalmic case, which has baffled the physicians of two cities, the patient being now virtually blind as a result: About six weeks ago a man, aged 66, in good health, came to me with what appeared to be rather severe conjunctivitis of the left eye. The usual treatment with silver nitrate, mercurochrome-220 soluble, ethylhydrocupreine, mild silver protein, zinc, milk injections and other remedies failed to halt the disease. Atropine was promptly added and almost daily reports from the laboratory here were that no germ of any description could be found in the secretion. This report has continued to come from every bacteriologic examination, both here and elsewhere (Richmond, Va.). In about ten days the right eye began with similar conjunctivitis with dilated pupil as if secretion from the left eye might have crossed over the bridge of the nose during sleep and infected the right eye. Infection was not thought possible, however, as no germ could be found, and hence the right eye had not been sealed. The inflammation, uncontrolled, gradually involved the intra-ocular structures of both eyes. Corneal ulcerations developed on both eyes, apparently through the constant winking of the lids, which seemed to macerate the epithelium after ten days or two weeks. The conjunctivae were red and thickened now and pus apparently streamed from the eyes. The secretion from both eyes has flowed continuously and seemingly independent of any treatment with antiseptics. As stated, the inflammation has gone on from the outset from bad to worse until now the patient can only tell light from darkness. The pus is still running, with the lower lids greatly thickened and everted as if Nature were now attempting in this belated way to favor drainage of pus away from the cornea of both eyes. The ulcers have become quiescent, having healed to a great extent, but the pupils have ceased to respond to atropine and the patient has reached a helpless state. There is a history of gonorrhea but no active urethritis at present. The patient is a bachelor. Could this be a metastatic infection? We have pulled all his teeth, which were bad. There is no albumin, sugar or other irregularity. The Wassermann reaction is negative. The patient is a railway conductor who has been occupied in the same way every day for forty years. He does not use drugs or handle animals. Must atropine be continued? I ceased atropine about ten days ago. Please reply at once and give what help in the way of suggestions you can.

M.D., Virginia.

Answer.—There are certain forms of conjunctivitis in which none of the well known pathogenic organisms are concerned but seem to be due to a filtrable virus. The most common of these is the so-called inclusion blennorrhea of the new-born. But, in these, corneal ulceration never occurs except as a secondary infection, which is most probable in this case. The likelihood is that the corneal epithelium was macerated by the lakes of pus that were present and through the damaged epithelium there entered into the cornea organisms of a secondary type, most likely staphylococci and streptococci. Atropine should be continued as long as there is still evidence of inflammation. It is probable that foreign protein in shock-producing doses would be of benefit. Frequent irrigations of the conjunctiva with the continued use of silver nitrate are definitely indicated as long as there is a purulent secretion. If the conjunctiva is still so edematous that it protrudes between the lids, ice applications are in order until the edema subsides.

TREATMENT OF PERSISTENT POSITIVE WASSERMANN REACTION IN SYPHILIS

To the Editor:—Will you kindly advise me what to do in the following case: A four plus Wassermann reaction was discovered during a general physical examination. I gave the patient thirty-three neoarsphenamine, three arsphenamine, fifteen sulpharsphenamine, twelve bismuth and fifty-four mercury treatments between Jan. 15, 1928, and July 15, 1930. The Wassermann reactions were 4 plus, 4 plus, 3 plus, 2 plus and 3 plus. He never showed any symptoms referable to syphilis. He has some albumin in his urine, pain over the kidney region and an exfoliative dermatitis over the palms and the soles. This is due to the arsenic. Shall I continue with antisyphilitic treatment? If so, what shall I use?

Harry Hallarman, M.D., New York.

Answer.—At present the patient needs rest, general supportive treatment and possibly intravenous injections of sodium thiosulphate. The urine should be watched carefully. After recovery from the toxic reaction, the spinal fluid should be examined. If this gives positive results, fever therapy with typhoid vaccine or malaria is indicated. If the spinal fluid examination and clinical tests give no indication of central nervous involvement, moderate treatment with bismuth and iodides may be given, with considerable rest intervals. The persistent Wassermann reaction will have to be ignored. Treatment will protect against serious damage from the syphilis.

DEXTROSE AND SALINE SOLUTION BY HYPODERMOCLYSIS

To the Editor:—Is there any reason why dextrose and physiologic solution of sodium chloride should not be given together by hypodermoclysis when indicated? Is there any chemical reaction that would be harmful to the body? Would a 10 per cent solution of dextrose be likely to cause a slough? W. C. Stanberry, M.D., Charleston, Tenn.

Answer.—There is no harmful chemical reaction; but the osmotic tension needs to be adjusted so as not to have it become excessive. When dextrose is added to the saline solution it will, of course, raise the osmotic tension. A 5 per cent solution of dextrose is approximately isotonic with blood serum. Mixing equal quantities of isotonic dextrose solution and of physiologic solution of sodium chloride yields an isotonic solution. Nevertheless, dextrose solution is not as well borne by the subcutaneous tissue as is physiologic solution of sodium chloride; and 10 per cent solution, being hypertonic, may possibly cause sloughing. It is better to give dextrose solution intravenously or intramuscularly rather than subcutaneously.

DERMATITIS FROM SOAP AND CLEANSING WITHOUT IRRITATION

To the Editor:—I have a patient with an eczematoid eruption on the dorsal surface of both hands, extending in between the fingers. The configuration of the eruption suggested a ringworm infection and I thought I found spores on one microscopic examination; but subsequent examinations have not confirmed this finding and it has not responded satisfactorily either to the use of kerolysin (Upjohn) or to ultraviolet irradiation. The patient is a linotype operator. The only possible occupational irritant which I can discover is Lava soap, which she uses freely in cleansing her hands. Perhaps the ink might also be considered. Could you give me any information as to the composition of this soap and whether any of the ingredients would be especially irritating? If so, could you suggest a less irritating cleansing agent? Please omit name if published in The Journal.

M.D., California.

Answer.—There is probably no soap that will not produce a dermatitis in some individual. It is not possible to determine any ingredient in the Lava soap which might be particularly irritating. A good castile soap is usually as little irritating as any.

When the hands are much inflamed they can be cleansed as follows: Rub olive oil into the hands until they are saturated and some excess is left on; then massage into this one or two eggs as necessary to make an emulsion. When this emulsion has been thoroughly rubbed all over the hands, rinse with tepid water and dry. This particular method cleanses the hands thoroughly and leaves a thin film of oil for protection.

DANGER FROM METHANOL AS SKIN RUB

To the Editor:—In the controversy between the producers of denatured ethyl alcohol and the producers of methanol, both the distilled and the synthetic product, in connection with the use of this substance in antifreeze mixtures, the implication has been made that methanol is not absorbed through the skin, or at least no toxic results arise as the result of skin contact, and that methanol might be used as a body rub. I request to be advised as to the facts in the situation. Please omit name.

M.D., Ohio.

Answer.—When methanol is used as a body rub in place of ethyl alcohol, some of the vapor is inhaled. There is some evidence that methanol may be absorbed through the skin. While acute poisoning from the external use of methanol is unlikely, such use is decidedly inadvisable. Methanol is further discussed in an editorial entitled "Another Gas Hazard," in The Journal, August 30.

"IN-NO-SCENT" AND "THE EXPERT"

To the Editor:—1. Kindly advise me regarding a proprietary deodorant known as "In-No-Scent," which a patient has asked me about. 2. I would also like to know about a pamphlet called "The Expert," published by the Riverside Press of St. Paul, giving names of specialists in various lines. Is their publication reliable and do they carry out their contract? Please do not publish my name in The Journal if these questions and answers are published.

K. B. S., M.D., Connecticut.

Answer.—1. We have no information about or record of "In-No-Scent." If it is a product sold for controlling sweat excretion in local areas, such as the axilla, it is likely to contain some salt of aluminum, the basis of most products of this type.

2. We have seen no recent issue of "The Expert." It used to be published by the Imperial Information Bureau of St. Paul and purported to list "Eminent Surgeons, Physicians and Specialists" in various parts of the country. These eminent individuals were classified by groups, such as "Surgeons," "Internists," "Specialists in Nervous and Mental Diseases," "Specialists in Skin and Genito-Urinary Diseases," "Oculists and Aurists," and "Obstetricians." Just what one had to do to qualify as an "expert" for inclusion in the booklet is not quite clear. According to information received, the payment of a fee to the publishers appeared to have some bearing on the matter of eligibility. As long ago as March 27, 1909, The Journal published a protest from a physician in Detroit, who objected to having his name appear in "The Expert." The *Southern Medical Journal* in 1913 contained an editorial in its September issue on the same subject under the title, "Easy Mark Doctors." In June, 1913, the local medical society of Jacksonville, Fla., passed resolutions condemning the publication.

MENINGOVASCULAR SYPHILIS

To the Editor:—I have a young woman patient who developed meningovascular syphilis one year after the initial lesion. After continuous and, at intervals, energetic treatment, the laboratory reports on fluid and serum are negative. However, neurorecurrences persist, and the patient is totally incapacitated a large portion of the time, pain being the dominant factor. If treatment is properly carried forward, how soon may I expect a remission of the more distressing symptoms? Please omit name and address.

M.D., *Texas.*

Answer.—Syphilis is such a chronic disease, its nervous manifestations are so difficult to treat, and its symptoms are so protean that no definite statement can be given as to how soon any given patient might be relieved of any group of symptoms. One can only continue the usual therapeutic measures, treat his patient symptomatically at the same time and hope for the best. The physician must be sure that in a syphilitic patient he is not dealing with symptoms caused by other quite different conditions.

REMOVAL OF WARTS

To the Editor:—Is there any known cause for little elongated warts that occur on the face and body and is there internal treatment for them?

R. F. Sheets, M.D., Carthage, Ill.

Answer.—Ordinary warts sometimes grow long, but the long ones are few among many flat warts. It is assumed, therefore, that the warts referred to are the tiny soft pedunculated fibromas often seen on the neck and about the axillae. The cause is not known, nor is there any internal treatment to benefit them. Clipping them off cures them.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

CALIFORNIA: San Francisco and Los Angeles, Dec. 10, 1930. Reciprocity examinations. Sec., Dr. C. B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

IOWA: Des Moines, Dec. 2-4, 1930. Dir., Mr. H. W. Grefe, Iowa Dept. of Health, Des Moines, Iowa.

KANSAS: Topeka, Dec. 9, 1930. Sec., Dr. A. S. Ross, Sabetha, Kan.

MARYLAND: Regular, Baltimore, Dec. 9-12, 1930. Sec., Dr. H. M. Fitzhugh, 1211 Cathedral St., Baltimore, Md. Homeopathic, Baltimore, Dec. 9, 1930. Sec., Dr. J. S. Garrison, 517 Old Orchard Rd., Ten Hills, Baltimore, Md.

NEBRASKA: Lincoln, Nov. 20-22, 1930. Sec., Mr. Ernest M. Pollard, Lincoln, Neb.

OHIO: Columbus, Dec. 1-4, 1930. Sec., Dr. H. M. Platter, 85 E. Gay St., Columbus, Ohio.

TEXAS: Waco, Nov. 18-20, 1930. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas, Texas.

UTAH: Salt Lake City, Dec. 15 and 16, 1930. Dir., Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City, Utah.

VIRGINIA: Richmond, Dec. 9-12, 1930. Sec., Dr. J. W. Preston, 803 Medical Arts Bldg., Roanoke, Va.

WEST VIRGINIA: Morgantown, Nov. 20, 1930. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

WISCONSIN: Milwaukee, Dec. 13, 1930. Basic Science. Sec., Prof. R. N. Bauer, 3410 Wisconsin Ave., Milwaukee, Wis.

Michigan June Report

Dr. F. C. Warnshuis, secretary of the Board of Registration in Medicine of Michigan, reports the written examination held at Ann Arbor, June 10-12, 1930, and Detroit, June 16-18, 1930. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Two hundred and seventy-three candidates were examined and passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
College of Medical Evangelists	(1930)	83.9, 84, 84*
George Washington University Medical School	(1904)	83.6*
Loyola University School of Medicine	(1930)	82†, 83†
Northwestern University Medical School	(1930)	81.7, 86‡
Rush Medical College	(1928) 83.7, (1929) 85, (1930)	81, 81.5#, 82, 82, 83, 83#, 84, 84.8#, 86#, 86#
Indiana University School of Medicine	(1928)	84*
Tulane University of Louisiana School of Medicine	(1929)	82*
Johns Hopkins University School of Medicine	(1928)	86
Harvard University Medical School	(1925)	84*, (1927) 86*, (1928) 82.7, 87.1
Tufts College Medical School	(1930)	82.6
Detroit College of Medicine and Surgery	(1930)	81‡, 82‡, 83‡, 83‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 84‡, 85‡, 85‡, 85‡, 85‡, 85‡, 85‡, 85‡, 85‡, 85‡, 85‡, 85‡, 85‡, 86‡, 86‡, 86‡, 86‡, 86‡, 86‡, 86‡, 86‡, 86‡, 86‡, 87‡, 87‡, 87‡, 87‡, 87‡, 87‡, 87‡, 87‡, 87, 88‡, 88‡, 88‡, 88‡
Saginaw Valley Medical College	(1900)	86§
University of Michigan Medical School	(1903)	86§, (1928) 83.7*, 83.8, (1929) 80.7, 81.1, 82.7*, 83.5*, 88, (1930) 77.8, 79, 79.7, 80.6, 80.6, 81.1, 81.3, 81.7, 81.7, 82, 82.1, 82.1, 82.2, 82.6, 82.7, 82.8, 82.8, 82.8, 83, 83, 83.1¶, 83.2, 83.3, 83.4, 83.5, 83.5, 83.5, 83.6, 83.7, 83.7, 83.7, 83.7, 83.7, 83.8, 83.8, 83.8, 83.9, 83.9, 84, 84, 84, 84.1, 84.2, 84.3, 84.3, 84.3, 84.3, 84.4, 84.4, 84.4, 84.5, 84.5, 84.6, 84.6, 84.7, 84.7, 84.7, 8.7, 84.7, 84.8, 84.9, 84.9, 84.9, 85, 85, 85.2, 85.2, 85.3, 85.3, 85.3, 85.3, 85.4, 85.4, 85.4, 85.5, 85.5, 85.5, 85.5, 85.5, 85.6, 85.6, 85.6, 85.7, 85.7, 85.7, 85.7, 85.7, 85.7, 85.8, 85.9, 85.9, 85.9, 85.9, 85.9, 86, 86, 86.1, 86.1, 86.1, 86.1, 86.2, 86.2, 86.2, 86.2, 86.2, 86.3, 86.3, 86.3¶, 86.4, 86.4, 86.4, 86.5, 86.5, 86.5, 86.5, 86.5, 86.6, 86.6, 86.6, 86.6, 86.6, 86.6, 86.7, 86.8, 86.9, 86.9, 86.9, 87, 87, 87*, 87.2, 87.2, 87.3, 87.3, 87.4, 87.5, 87.5, 87.6, 87.6¶, 87.7, 87.7, 87.8, 87.8, 87.9, 88.2, 88.3, 88.3, 88.5, 88.6, 88.9, 89, 89.2
St. Louis University School of Medicine	(1930)	82.7, 84
University of Minnesota Medical School	(1930)	82
University of Buffalo School of Medicine	(1929)	80
Jefferson Medical College	(1927) 81.9, (1928)	82*
University of Wisconsin Medical School	(1929)	85.3*
Queen's University Faculty of Medicine	(1923) 84*, (1929)	81.7, 83
University of Alberta Faculty of Medicine	(1929)	85
University of Toronto Faculty of Medicine	(1926)	82, (1928) 80.5, 82.4, 84; (1929) 83.4*, 83.5*, 84.7*, (1930) 85, 86
University of Western Ontario Medical School	(1907)	77.6*, (1929) 83, 84, 86, (1930) 83, 83, 84, 85, 85, 86, 86
University of Budapest Faculty of Medicine	(1916)	84‖

* License issued.

† This applicant has completed four years' medical work and will receive an M.D. degree on completion of one year's internship in a hospital.

‡ This candidate has received an M.B. degree and will receive an M.D. degree on completion of one year's internship in a hospital.

This applicant has received a four-year certificate and will receive an M.D. degree on completion of one year's internship in a hospital.

§ Permitted to write examination to satisfy personal ambition — no license issued.

¶ Degree withheld until applicant passes comprehensive examination and the license is withheld until one year after presentation of M.D. degree.

‖ Verification of graduation in process.

Dr. Warnshuis also reports a special examination held at Detroit, Jan. 13, 1930. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Four physicians were examined and passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
Johns Hopkins University School of Medicine	(1917)	83.2
Michigan College of Medicine and Surgery	(1906)	75
Medical Faculty of Trinity University, Toronto	(1892)	76
Royal College of Physicians and Surgeons, England	(1922)	86

Book Notices

ANATOMY OF THE HUMAN BODY. By Henry Gray, F.R.S. Twenty-second edition thoroughly revised and re-edited by Warren H. Lewis, B.S., M.D., Professor of Physiological Anatomy, Johns Hopkins University, Baltimore, Md. Cloth. Price, $10. Pp. 1391, with 1232 illustrations. Philadelphia: Lea & Febiger, 1930.

William Gray, the author of this textbook of anatomy, died of smallpox at the age of 34. He saw only the first edition of his book, published in 1858, which consisted of 750 pages and contained 363 illustrations. His work was done so well that it has lived through twenty-two editions and still contains many of the original illustrations and much of the original text. The editors have endeavored to adhere to the original plan and have supplied only such changes as advances in science made necessary in order to put at the service of students the latest accessions to anatomic knowledge. Among the great advances made since the first American edition appeared in 1859 have been those in microscopic anatomy and the anatomy of the embryo. New material on these subjects has come to occupy a considerable portion of the text, although the main portion has always remained primarily a descriptive anatomy of the human body. In this edition the section on the central nervous system has been revised. New material has been added on the physiologic anatomy of various organs. New illustrations have been added and many old ones have been replaced. The nomenclature, as in previous editions, has remained in English, and important references to the literature have been added at the end of each section. The publishers have done well to provide a volume used so much by students that will remain open and flat at almost any page.

AN INTRODUCTION TO THE STUDY OF HUMAN ANATOMY. By Robert James Terry, A.B., M.D., Professor of Anatomy in Washington University. Cloth. Price, $3.50. Pp. 346. New York: Macmillan Company, 1929.

Dr. Terry is professor of anatomy at the Washington University School of Medicine, St. Louis, and associate editor of the *American Journal of Physical Anthropology*. This volume is a student's guide in the dissecting room. The laboratory method is emphasized, with many new methods of procedure and demonstration. Descriptive text is omitted. The author recommends two modes of inquiry in the study of gross structure of the human body. The student follows the direction in his laboratory study of the cadaver as a source of his knowledge, and the evidence of demonstration is to be verified by the description given in a good textbook on anatomy. The process of inquiry in learning human structure by the laboratory method is augmented by direct individual investigation. Problems are assigned in rotation to students and the observations made are recorded on special form sheets. The directions for laboratory work cover five sections, each of which represents a part of the body commonly designated in the assignments of a dissecting room. Collateral reading is stressed by the author as an important part of training and he has appended reading references for each anatomic unit assigned for study. At the close of each chapter are found recommendations for study which is to be carried on outside the laboratory—in the library, at the dispensary, in the pathologic museum and especially in the necropsy room. The Basle Anatomic Nomenclature in both Latin and English is consistently used. The author's aim is to develop in the student a sense of investigation which will make him an independent worker. The book will be found valuable to teachers not alone because of the succinct directions given for successive steps in the section but also because of the new pedagogic angle of approach to study. By faithfully following this method of teaching the student will not lose interest in the accurate investigation of facts. He will gain the proper perspective by orientating this anatomic knowledge in a relation to the various departments of biology, medical science and other subjects correlated with anatomy. The two procedures, verification and original observation, provide the main foundation of the student's knowledge of an anatomic method and subject method such as has been well worked out in this introduction to the study of human anatomy.

Plarr's Lives of the Fellows of the Royal College of Surgeons of England. Revised by Sir D'Arcy Power, K.B.E., F.R.C.S., Hon. Librarian Royal College of Surgeons, with the Assistance of W. G. Spencer, O.B.E., M.S., F.R.C.S., and Professor G. E. Gask, C.M.G., D.S.O., F.R.C.S. Volume I and Volume II. Cloth. Price, 42/— net. Pp. 752 and pp. 596. London: John Wright & Sons, Ltd., 1930.

This volume is unusual among biographies. Here are the records of the surgeons of the old school who carried on during that brilliant period of English operative surgery instituted by Lister. The actual achievement of this publication is accredited to Lord Moynihan, who acted on the suggestion of Sir John Bland-Sutton. It was realized in printed form through the gift of £5,000 by the late Mr. Thelwal Thomas, to whom the volumes are a memorial. The dedication is rightfully given to Mr. Victor Plarr, librarian of the college whose obituary records form the basis of the work. Following a memoir of Plarr is a transcript of the charter of the Royal College of Surgeons and a list of the 300 surgeons elected as fellows in 1843. Credit must be given the editor, Sir D'Arcy Power, and his collaborators, Walter Spencer and Prof. G. E. Gask, for their painstaking compilations.

The work includes the biographies of 2,600 members elected since the establishment of the college in 1843. Supplementary editions will be issued at ten year periods. The records of members from 1745 to 1843 are yet to be done. The two volumes give complete information of that "great majority, more ambitious than their fellow students, who took the qualifications in surgery, and who used their talent, not only professionally, but often performed public duties, as well as those whose memorial consists of no more than a brief obituary notice." When possible the individual's professional history is completed with pen pictures of his appearance, traits of character and idiosyncrasies. Mention is made of the activities of fellows outside their profession; many were men of varied attainments who brought their zeal to bear on sciences other than surgery, and many were noted as appreciative of the beauties of nature and lovers of the arts.

The biographies are replete with the testimonials of friends, honors received, hospital and university connections and lists of their publications, and the whole is freely spiced with anecdote. There pass in review such surgical pathologists as Edward Stanley, William Lawrence, Sir James Paget and Sir William Savory; men who devised brilliant departures in surgical procedure as Arthur E. J. Barker, who established the early diagnosis and operation for intussusception and who pioneered, as did Francis Woodhouse Braine, in placing local anesthesia on a firm scientific basis. There were men such as Forbes Frazer, who worked in the cause of medical union, and Sir John Simon, the maker of modern sanitary science in England. There was the great war surgeon Sir Anthony Bowlby, and John Wyley of the Indian Service. Such daring experimentalists as James Edward Adams, who transfused his own blood into the veins of a patient in collapse, Sir Victor Alexander Horsley, who made fifty hazardous self-demonstrations of anesthesia and who contributed so much to knowledge of the pathology of the nervous system, and James Syme, the boldest and most original surgeon of the era preceding the introduction of anesthesia are made to live again. Adequate space is given the men who devised technics of historic importance. Among others were Sir Benjamin C. Brodie, who popularized the method of lithotrity in England; Charles A. Key, who was the first to ligate successfully the subclavian artery for the cure of axillary aneurysm; Odilon Marc Lannelongue, the first surgeon in France to open the skull for the relief of the compression of the brain; Macewen, who invented the operation of linear osteotomy, and Lawson Tait for his procedures in abdominal surgery. The lengthy biography of Sir Frederic Treves embraces an epitome of the history of surgery of intestinal obstruction and appendicitis. Readers cannot but be inspired by the lives of men who advanced systematic scientific research such as Joseph Blake, who migrated to America and at St. Louis was among the first to introduce animal experimentation in the western country; Sir William Bowman, "the father of general anatomy in England," and Theodor Kocher, who was the first advocate of Lister's methods in Switzerland. The detached references to education in the Victorian, Edwardian and early Fifth Georgian eras would be incomplete without credit to such teachers as Sir George Murray Humphry, who converted the insignificant medical school at the University of Cambridge of 1866 into one that is world renowned; Thomas Huxley, who was one of the founders of the school from which biology came as a science; and Thomas Wharton Jones, the distinguished ophthalmologist "whose work marks, with Waller, the beginning of modern scientific physiology in England." Prominent figures in English medical history were also Sir Jonathan Hutchinson, a medical genius superior in his knowledge of the history of medicine, and Sir James Paget, who linked the surgery of John Hunter with that of the present day. Joseph Lister was elected a fellow of the Royal College of Surgeons in 1860 and delivered the Croonian lecture in 1863, taking as his subject "The Coagulation of the Blood." In 1869, he published his "The Antiseptic Method of Treating Compound Fractures and the Use of Catgut Rendered Aseptic by Carbolic Acid Ligatures." More than ten pages are devoted to the epochal experiments of Lister, who "revolutionized the art of surgery and started an indefinite extension by inventing the first method through which a surgeon was able with certainty to prevent inflammation from disturbing nature's healing of a wound." Here is the whole story of Lister's fight to obtain a hearing in the face of the prejudices of his senior surgeons.

Intimate knowledge is given of the personalities of men who have contributed definitely to the scientific advancement of the world. The publication will doubtless find a welcome response from readers who are interested in the progress of surgery from the introduction of anesthesia and antiseptics to the asepsis of today.

Discoveries and Inventions of the Twentieth Century. By Edward Cressy. Third edition. Cloth. Price, $4.25. Pp. 476, with 342 illustrations. New York: E. P. Dutton & Company, 1930.

Subsequent to the publication of the first edition of this book in 1914 the World War stimulated research and discovery in many directions. Moreover, the volume has become a classic work of reference. This edition covers such new subjects as artificial silk, television and phototelegraphy. The chapters of special interest to physicians are those on electricity, artificial production of cold, chemistry and radium. The illustrations are well printed and the index is good.

Le diabète sucré son traitement. Par P. A. Carrié, médecin des Hôpitaux de Paris. La pratique médicale illustrée. Directeurs Professeur E. Sergent, R. Mignot et R. Turpin. Paper. Price, 20 francs. Pp. 94. Paris: G. Doin & Cie, 1930.

It is a general fault of articles in the French literature that practically no attention is paid to the matter of bibliography. Carrié's treatise is no exception, and this detracts considerably from the value of the book to those who may wish to go to original sources for confirmation of the statements made in the text. Such neglect of the literature gives the impression that the authority of the professor's spoken word is supreme in France and that the critical questioning of authority, which has developed particularly in Germany and America and is so stimulating to progress, is sadly lacking there. A few errors are noted. The author, for instance, in a footnote infers that alcohol is converted into sugar. He also contrasts the ketogenic antiketogenic ratio 2/1 of Shaffer with the 4/1 ratio of Ladd and Palmer, overlooking the fact that Shaffer's ratio is one of molecules of fatty acid to molecules of dextrose, whereas Ladd and Palmer are expressing the proportions in terms of grams of fat to grams of carbohydrate. Recalculated into molecules, Ladd and Palmer's ratio is essentially the same as that of Shaffer. It is also evident from the context that the author has not comprehended the fact that these ratios are significant only as they express the proportions of the various food factors actually metabolizing. The ratio of the factors in the diet will only be the same as that of foods metabolizing when none of the food eaten is stored and all caloric requirements are perfectly satisfied. The treatment of coma, from the point of view of many American clinicians is inadequate. The use of alkali is reserved for cases when insulin is temporarily unobtainable and little or no attention is paid to the important question of providing fluids to combat dehydration. The consideration given the question of diabetes in pregnancy is not satisfactory. Increasing severity as pregnancy progresses is not a common observation; on the contrary, in many instances the tolerance increases in the later months of pregnancy and continues high during lactation. Nor can one agree with the unqualified statement that nursing the infant aggravates the mother's diabetes. Despite these few objections the treatise is an excellent presentation of a method of treating diabetes, which resembles closely that in use in the leading American clinics, a method in which empiricism has been replaced by a scientifically adjusted dietary and the precise use of the now available substitution therapy.

Ephedrine and Related Substances. By K. K. Chen, Department of Pharmacology, Johns Hopkins University, and Carl F. Schmidt, Department of Pharmacology, University of Pennsylvania. Medicine Monographs, Volume XVII. Cloth. Price, $2.50. Pp. 121. Baltimore: Williams & Wilkins Company, 1930.

This volume is a medical monograph that deals with the subjects indicated in the title. It therefore is a digest of the literature rather than a record of the authors' researches. The text is up to date, is well written, and should be of value to those interested in the subject. It is particularly fitting that the authors are the discoverers of the physiologic action that has raised ephedrine from obscurity to its place of importance in medicine. An excellent bibliography adds to the value of the volume.

The Cancer Process. By J. J. M. Shaw, M.A., M.D., F.R.C.S.E. Paper. Price, 1/— net. Pp. 16. Edinburgh: E. & S. Livingstone, 1930.

From available publications by deduction the author arrives at the conclusion that cancer is produced by the prolonged contact of living tissue and any substance that is viscous, insoluble in tissue fluids, and toxic. The hyperplasia induced is of a protective nature. These substances imitate in their action the fibrinous exudate that is responsible for the multiplication of cells in repair and after conception, the intermediate mechanism being an affinity of potassium for vitiated cytoplasm and a resulting imbibition of fluid. Because of the ability of potassium in cells to change gamma rays to beta rays, he is led to the view that intensification of gamma rays outside the body will develop increased secondary beta radiation, which will inhibit and destroy the proliferating cells. It now remains to produce evidence that this conception gets somewhere practically.

Edward Jenner and the Discovery of Smallpox Vaccination. By Louis H. Roddis, Lieutenant Commander, Medical Corps, United States Navy. Cloth. Price, $1. Pp. 155, with illustrations. Menasha, Wisconsin: George Banta Publishing Company, 1930.

This essay is a most satisfactory sketch of Edward Jenner. A consideration of smallpox inoculation is introduced at the beginning of the book and discussed in its historical bearings. Of especial interest to Americans is a reprinting in Chapter III of "Some Account of the Success of Inoculation for the Smallpox in England and America," published in London in 1859 by Benjamin Franklin. This includes "Plain Instructions for Inoculation in the Small-Pox," prepared by William Heberden. The author writes in an interesting manner of Jenner's early years and education, of his long years of arduous labor as a country practitioner, of his observations in natural history under the inspiration of John Hunter, and of his efforts to write poetry. The story of vaccination from the first observations in Gloucestershire until the practice had spread over the world is related in a connected manner. The introduction of a few pictures and numerous letters gives a strong personal tone and add much to the interest of the story. An excellent bibliography, a chronology of the principal events of Jenner's life, and a list of Jenner's published works close the essay. Some interesting statistics bearing on vaccination are included in the appendix. It is fortunate to have a readable life of Edward Jenner built on extensive research and study of original materials from which the author has judiciously selected such portions as are vital and instructive. The appearance and excellence of this volume remind one of other short biographies, such as Osler's "Thomas Linacre" and Riesman's "Thomas Sydenham," and like them it will furnish a pleasant and profitable hour to those who read it.

Thérapeutique médicale. I. Maladies du tube digestif. Par Maurice Lœper, professeur de thérapeutique à la Faculté de médecine de Paris. Avec la collaboration du Dr. André Lemaire, chef de laboratoire à la Faculté. Paper. Price, 50 francs. Pp. 369, with 45 illustrations. Paris: Masson & Cie, 1930.

"The world of man," says Loeper, "is divided into two classes: those who believe in therapeutics and those who mock it." Inferentially, this book is intended to lessen the number in the latter class. It is the first volume of a series planned by the author to cover successively the therapy of the various other organs and systems. This volume deals with the therapeutics of the various functional subdivisions of the alimentary tract, especially from the standpoint of the remedies employed. The author's studies lead him to believe that bitters not only have a reflex effect in increasing gastric secretion by excitation of the sense of taste but also have a direct effect on the stomach, when introduced into it by means of a tube. They also produce transient leukocytosis, which is especially marked with quassia and columba. The author believes in pepsin, not only as substitution opotherapy but also as an excitant of gastric secretion and as a "regulator of the digestive hormones." He has shown it to be a stimulant to colonic motility, on hypodermic injection. As yet unappreciated therapeutic possibilities may reside in the injection of pepsin. He believes in the efficiency of orally administered pancreatin, especially with enteric coating; also that enteric pills of 0.20 Gm. of magnesium sulphate might be capable of exciting contractions of the gallbladder; and he does not express the reasonable doubt that the enteric coating may not dissolve at exactly the point it is intended to. All of this is mentioned to illustrate the rather optimistic tendency of the author, who evidently belongs to the first of the two classes mentioned. One naturally wonders whether the therapeutic optimism of the teacher might not be responsible for therapeutic nihilism developing among some of the disappointed students. There is, nevertheless, a great deal of good in this volume, the careful perusal of which certainly inculcates therapeutic resourcefulness.

Grow Thin on Good Food. By Luella E. Axtell, M.D. Cloth. Price, $2. Pp. 336, with illustrations. New York: Funk & Wagnalls Company, 1930.

Here is a popular guide in simple language for the overweight person who wishes and needs to reduce to normal. It is based on experience from the author's own reduction and from treatment of many obese patients. Tricks in cookery, cooking hints, are given to show how calories can be "squeezed" out of delightful dishes. Many menus and recipes are proposed for reducing body fat only and for yielding all nutrient needs. Exercise and work cooperate with the diet in the reduction program. Courses of exercises are outlined. Heat and cold treatments used with care are accessories to diet restrictions. When reduction has been accomplished, weight should be maintained at normal with the vital foods providing sufficient minerals, proteins and vitamins to meet all body needs.

Traitement médical des affections stomacales. Par Léon Meunier. Paper. Price, 22 francs. Pp. 211, with 34 illustrations. Paris: Masson & Cie, 1930.

This booklet, the result of thirty years of gastro-enterologic practice and experimental researches, is more important as a contribution to the literature on the subject than its size would suggest. It develops certain points of view that have not yet found general acceptance and deserve a hearing. Thus, the author's researches, in agreement with other French observers, point to a certain molecular concentration as a determining factor in gastric evacuation. Saline as well as nutritive solutions are retained in the stomach until the cryoscopic index is in the vicinity of 0.38; such is represented, for example, by 0.55 per cent solution of sodium chloride, a 1 per cent solution of sodium bicarbonate, of dried sodium sulphate, or of dried sodium phosphate and a 2 per cent solution of dried sodium citrate. This is why mineral waters of the proper freezing point, such as vichy water, are better tolerated by the stomach than are others. Medicinal solutions prescribed for digestive disturbances should be at this ideal freezing point. All delayed epigastric pain or distress relieved by food or alkali is, in the author's opinion, due to pylorospasm produced by disproportion between the acidity of the gastric juice and the alkalinity of the duodenal juices: in other words, insufficient neutralization in the duodenal bulb. Even though there is excessive gastric acidity, pain does not occur as long as the duodenal secretions are capable of compensating; and, on the other hand, though gastric acidity is normal, a deficiency in duodenal alkalinity will produce the pain. The author studied duodenal hypo-alkalinity by a combined duodenal and gastric test meal after double intubation. He is inclined to ascribe the condition to high acidity of pathologic bile and finds it generally associated with hypercholesteremia. Alvarez's ingenious suggestion that pylorospasm is one of the phenomena of reverse peristalsis is not mentioned by the author, although, since as duodenal juice regurgitation occurs normally and is capable of cutting down excessive gastric acidity, it is probable that pylorospasm is the primary factor and the cause of disproportion in the hydrogen ion concentration at the pylorus, which then tends to be maintained as a vicious circle. The booklet concludes with cooking recipes for patients with gastric hyperacidity, duodenal hypo-alkalinity and gastric hypo-acidity. Even though some of the author's therapy may be rather visionary at times, as his recommendation of enteric capsules of sodium bicarbonate for duodenal hypo-alkalinity, the place in the intestine where such capsules may open being entirely problematic, one cannot but help wishing, in view of the many good things contained in it, that it may secure translation into English.

A Manual of Normal Physical Signs. By Wyndham B. Blanton, B.A., M.A., M.D., Assistant Professor in Medicine, Medical College of Virginia. Second edition. Cloth. Price, $3. Pp. 246, with 49 illustrations. St. Louis: C. V. Mosby Company, 1930.

This small volume contains much information in tabular form and many diagrams of the location of organs with relation to the surface of the body. The material comprises only the normal physical signs. Under the lymphatic system, for example, there are tables showing what part of the head each group of glands drains. The parotid nodes drain the scalp, the middle ear and the chin. The axillary nodes drain the arm, the chest wall, the abdominal wall and the hand and breast. There are similar tables showing what lymph nodes drain other areas of the body. Under the subject of blood pressure there are brief tabulated definitions of fundamental terms such as pulse pressure, mean tension, hypotension, systolic blood pressure and diastolic blood pressure. The technic of taking blood pressure and the factors that cause it to vary are listed and so on through all parts of a physical examination. The aim was to list the normal signs so that they may be found promptly without having to read a long time, and that is the chief advantage in this style of book.

Nahrungsmittel-Tabelle zur Aufstellung und Berechnung von Diätverordnungen für Krankenhaus, Sanatorium und Praxis. Von Dr. Hermann Schall, Leitender Arzt des Kindersanatoriums, Königsfeld. Ninth edition. Paper. Price, 5.40 marks. Pp. 124. Leipzig: Curt Kabitzsch, 1929.

This is simply a complete collection of tables of food values organized according to the various classifications of foods, and according to the various types of values with which the dietitian is concerned. It is as complete and scientific a series of tables of this character as is available.

Seventy Birth Control Clinics. A Survey and Analysis Including the General Effects of Control on Size and Quality of Population. By Caroline Hadley Robinson. Foreword by Robert Latou Dickinson. Cloth. Price, $4. Pp. 351. Baltimore: Williams & Wilkins Company, 1930.

The physician will be amply repaid, whatever attitude he takes on the subject of birth control, if he will carefully consider the contents of Mrs. Robinson's book. Written by a student of economics and not a biased reformer, the book presents facts rather than extravagant speculation. The fact that the manuscript is the first of a series of publications on the medical aspects of human fertility, issued by the National Committee on Maternal Health, is an added recommendation. In the foreword, Dickinson says: "Every new endeavor to better public health passes through a difficult early stage. . . . Control of conception presents no exception." Mrs. Robinson says: "We are coming to realize that voluntary limitation of the family is an essential part of the economic structure of nearly every age and clime, and that we must choose between measures . . . in particular the old forms of limitation by abortion and infanticide, by celibacy or postponement of marriage (with prostitution) and the newer discoveries of social medicine." A complete survey of the seventy birth control clinics is taken up the first part of the book, and social implications of birth control in the second. A full bibliography and adequate index are found at the end.

Medicolegal

Life Insurance: Cancer and Good Health

(Vann v. National Life & Accident Ins. Co. (Texas), 24 S. W. (2d) 347)

On March 28, 1926, Carrie S. Vann entered a sanatorium for treatment for a cancer of the cervix of the uterus. She was given a radium treatment and several roentgen treatments. On or about April 5, she was discharged. On May 17, the National Life and Accident Insurance Company issued a policy on her life. Mrs. Vann was taken to the hospital every two weeks for examination, but she was given no treatment. According to the testimony of her physician, after she left the hospital there was a period during which he could find no trace of the cancer, and the patient had no symptoms of it. She resumed her ordinary household duties and gained back her ordinary weight and strength. In September, however, there was a recurrence of the cancer, and the patient died, Feb 10, 1926 [sic]. When she died, the insurance company resisted payment, alleging that the insured was suffering from cancer when she applied for insurance and that her statements with reference to being in good health were untrue and false and were made for the fraudulent purpose of inducing the company to issue a policy on her life. The beneficiary under the policy, the husband of the insured, brought suit. The case was tried before a jury, which, at the conclusion of the testimony, was instructed by the court as follows:

> To aid you in answering the following question, the Court instructs you that sound health, as that term is used in this charge, does not mean perfect health; it does not mean absolute perfection, but sound health in the construction of life insurance policies is a state of health free from any disease or ailment that affects the general soundness and healthfulness of the system seriously, that is, that the insured be not afflicted with a disease or bodily infirmity of a substantial nature, which affects the insured's general health, or which materially increases the risk to be assumed by the insurer.
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> 1. Was Mrs. Carrie S. Vann, wife of the plaintiff, in sound health as that term has been hereinabove defined to you, at the time the policy in question was issued on the 17th day of May, 1926? Answer yes or no.

Under the foregoing instruction, the jury found that the insured was in good health when the policy was issued, and judgment was issued against the insurer. The insurer appealed to the Court of Civil Appeals for the Eighth Supreme Judicial District, which reversed the judgment of the court below and rendered judgment in favor of the insurer. Thereupon the beneficiary under the policy appealed to the Commission of Appeals of Texas, Section A.

We think, said the Commission of Appeals, that there was sufficient evidence to raise the question as to whether or not the insured was in sound health, as the term was defined by the court, at the time the policy in question was issued, May 17, 1926. The Court of Civil Appeals erred in reversing the case and rendering judgment in favor of the insurer The rule of law in Texas is that the Court of Civil Appeals may reverse the judgment of a trial court on the preponderance of evidence, but it cannot render the judgment, if, disregarding all adverse evidence and giving credit to all evidence favorable to the plaintiff, and indulging every legitimate conclusion favorable to the plaintiff which might have been drawn from the facts proved, the jury might have found in favor of the plaintiff.

Winninger v. *Ft. W. & D. Ry. Co.* 105 Texas 56, 143 S. W. 1150. For the reasons stated above, and for other reasons stated in the opinion, the judgment of the Court of Civil Appeals was reversed, and the judgment of the trial court in favor of the beneficiary under the insurance policy was affirmed.

Hospital Liable for Fatal Tonsillectomy

(Gilstrap v. Osteopathic Sanatorium Co. (Mo.), 24 S. W. (2d) 249)

The Osteopathic Sanatorium Company operated the "Still-Hildreth Sanatorium," Macon, Mo., for the treatment of mental and bodily diseases according to osteopathic methods. On the staff was one R. J. McReynolds, an osteopath, whom the company paid a salary and provided with room and board. McReynolds, however, "Specializing in Eye, Ear, Nose and Throat," was associated with two osteopaths in Macon, who were authorized to make appointments for him.

Raymie Gilstrap called at the sanatorium with a friend, Sept. 6, 1928. He introduced McReynolds, saying, "This is the doctor that is going to remove my tonsils." Gilstrap returned to the sanatorium about half-past two on the afternoon of September 8. After some delay, McReynolds undertook to remove his tonsils under local anesthesia but was unable to do so. After McReynolds gave up the operation under local anesthesia, Gilstrap lay down about fifteen minutes. Then McReynolds took him in a car to the hospital connected with the Kirksville College of Osteopathy and Surgery, about 32 miles away. There Gilstrap was given a general anesthetic. He was removed to the operating room about 6:20, but McReynolds did not begin the operation until about 7 o'clock. About forty-five minutes later, a surgeon, Petermyer, connected with the hospital, came into the operating room and called McReynolds' attention to the weak and rapid pulse of his patient. The tonsils had been removed, but there was a "constant welling up of blood." McReynolds, who had been trying to stop it with a sponge, asked Petermyer's advice. Petermyer advised suturing, but McReynolds said that he had never done that and did not care to do it. Petermyer sutured, at McReynold's request, and the hemorrhage stopped. About 8 o'clock the patient was removed to his room, cyanotic, gasping for air, and without a discoverable pulse at the wrist. A glucose solution was injected and adrenalin was administered, but shortly after 9 o'clock the patient died.

Gilstrap's widow brought suit against the Osteopathic Sanatorium Company and obtained a verdict for $6,500. The sanatorium company appealed to the Kansas City Court of Appeals. It asserted, among other things, that there was no evidence on which to submit to the jury the question of the defendant's liability for McReynolds' acts and claimed that he was not the agent of the company but acted on his own behalf. Hildreth, the president and superintendent of the sanatorium, testified that the sanatorium was conducted solely for the treatment of nervous and mental diseases, that surgery was not employed, and that surgical cases were not admitted. There was no evidence, however, that Gilstrap knew that the company claimed that it treated only nervous and mental diseases, and the company was not entitled to any inference that he had any such knowledge. It was proper to assume only that Gilstrap believed that he was entering the sanatorium as its patient, to be treated by its physicians and surgeons. When he entered the sanatorium, the relation of physician and patient was created between him and the company. The relation continued until changed by mutual consent, or until reasonable notice was given, or until ended by his dismissal. The fact that the operation was ended elsewhere than at the sanatorium was of no consequence, if the relation of patient and physician existed and continued to exist throughout his treatment.

The claim of the Osteopathic Sanatorium Company that there was no proof of negligence on McReynolds' part and no proof of malpractice for which the company was responsible was met by the following statement by the court:

> Sufficient proof was made. The operation upon the patient was continued an unreasonable length of time, four times as long as would reasonably be required; dangerous hemorrhage was produced during the operation; the doctor in charge either failed to discover it or failed to stop the hemorrhage; and when advised by another doctor, about 45 minutes after the beginning of the operation, that the wound should be sutured in order to stop the hemorrhage, he declined to do it himself, but requested the other doctor to do it; that [sic] at the time the wound was sutured it was too late to save the patient's life on account of the loss of blood, and the unreasonable length of time of the operation. These, with other facts and circumstances in evidence, show that the treatment and operation upon the patient was not only improper and ill-advised, but was a complete and tragic bungle from its inception to its end. This presents a patent case of a doctor subjecting a patient to improper treatment, and allowing the patient to bleed to death, when in the exercise of ordinary skill it could have been prevented.

The Osteopathic Sanatorium Company asserted further, in support of its appeal, that no causal connection had been established between the alleged negligence and the death of the patient. But, said the court, there was nothing from which the jury could reasonably have concluded that death was due to any cause other than negligence and improper treatment, and no expert testimony on this subject was necessary. The company had not attempted to justify or excuse the methods adopted or to show that carelessness in the operation was not the cause of death or that death could not have been prevented by the use of ordinary skill. The court continued:

> For the jury to find, or for us to hold that defendant, as the doctor of this patient, did use reasonable care and skill, would be to profane the noble and humane profession of the healing art. Defendant employed and harbored an incompetent doctor in its sanatorium, and held him out to the public as safe and fit for all functions apparently intrusted to him, and should not be permitted to escape the consequences of his incapacity. If it could escape on the mere assertion that the doctor was not its agent, which assertion the jury did not believe, then the defendant, without responsibility, could entrap the innocent and unwary.

For the reasons here stated and for other reasons stated in the opinion, the judgment of the court below, in favor of the widow of the deceased was affirmed.

Illness of Juror: Effect on Verdict.—The separation of a sick juror from other members of the jury, in charge of a deputy sheriff, for medical attention, by direction of the court, pending the trial and after the jury had been ordered to be kept together, was a proper exercise of the court's discretion and could not be regarded as a violation of the order requiring the jury to be kept together, nor as imposing on the state the burden of making an affirmative showing that the sick juror was not exposed to any improper influence. The physician summoned by direction of the judge administered to the juror about 7 o'clock in the morning a hypodermic injection containing one-fourth grain of morphine and left with him a preparation of bismuth and paregoric. He stated that when the juror went back to service in the afternoon he was suffering no pain and his mental condition was normal. Although the sick juror sat in a rocking chair, supported by pillows to make his position more comfortable, during the remainder of the trial, there was no showing made that the juror was incompetent No objection was made by the appellant, as should have been done if the juror's condition warranted it, to proceeding with the trial, because of the juror's condition, but an attempt was made to explain this by stating that until after the trial was completed attorneys for the appellant had no knowledge of the kind of medicine that had been administered The court had held, however, in previous cases, that no error was committed in denying motions for a new trial on the ground that a juror had the appearance of being asleep or was asleep during the progress of the trial. *Pelham* v. *Page*, 6 Ark. 535; *Dolan* v. *State*, 40 Ark. 454. In the present case, the court found no error in the record. The judgment following conviction of second degree murder was affirmed, one justice dissenting.—*Spence v. State (Ark.), 24 S. W. (2d) 331.*

Society Proceedings

COMING MEETINGS

American Society of Tropical Medicine, Cleveland, December 27-30. Dr. Edwin Peterson, U. S. Naval Hospital, Washington, D. C., Secretary.
American Student Health Association, New York City, December 29-30. Dr. D. F. Smiley, Cornell University, Ithaca, N. Y., Secretary.
Radiological Society of North America, Los Angeles, December 1-5. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.
Society of American Bacteriologists, Boston, December 29-31. Dr. James M. Sherman, Cornell University, Ithaca, New York, Secretary.
Southern Surgical Association, Lexington, Ky., December 9-12. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.
Western Surgical Association, Kansas City, Mo., December 5-6. Dr. Frank R. Teachenor, 306 E. Twelfth St., Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Medical Sciences, Philadelphia

180: 453-596 (Oct.) 1930

*Clinical and Pathologic Studies on So-Called Tubular Nephritis (Nephrosis). S. B. Wolbach and K. D. Blackfan, Boston.—p. 453.

*Transfusion of Blood in Bright's Disease. H. O. Mosenthal and B. Ashe, New York.—p. 476.

*Etiology of Erythema Nodosum in Children: Relation to Early Tuberculous Infection. L. B. Dickey, San Francisco.—p. 489.

*Antistreptococcus Serum Treatment of Patients with Rheumatic Fever. C. H. Hitchcock, C. McEwen and H. F. Swift, New York.—p. 497.

*Blood Transfusion in Acute Infectious Diseases. J. F. Landon, New York.—p. 514.

*Venous Murmurs Found in Hepatic Cirrhosis and Confusion with Murmurs of Congenital Heart Disease. N. B. Gwyn, Toronto.—p. 525.

*Chronic Cholecystitis: Motor Disturbances of Gastro-Intestinal Tract in Relation to Preoperative and Postoperative Symptoms. N. W. Jones and D. L. Palmer, Portland, Ore.—p. 531.

Visceroptosis. B. P. Seward, Roanoke, Va.—p. 548.

*Visceral Pain. R. D. Rudolf and A. G. Smith, Toronto, Canada.—p. 558.

So-Called Tubular Nephritis (Nephrosis.)—Wolbach and Blackfan report eight fatal cases of acute tubular nephritis in children, with a view of ascertaining the accuracy with which a pathologic diagnosis can be determined from a consideration of the clinical and laboratory data. They believe that these cases are representative of a disease entity in childhood. This belief implies a common etiology or pathogenesis for the series. The pathology of the kidneys affords no premises for the explanation of the important physiologic disturbances of the disease and, therefore, they do not believe that the primary effect of the etiologic agent is on the kidneys or that the important manifestations of the disease are consequences of injury specific to the kidneys. The histologically demonstrable damage to the kidneys was found in the tubules. The glomeruli showed only lesions accountable for either by the terminal infection or severe degeneration of the tubules of the same units. In general the glomeruli were without lesions. Conclusion regarding the rôle of the thyroid in this disease is not possible. The thyroid lesion is probably a manifestation of functional exhaustion and, therefore, probably is neither cause nor direct consequence of the kidney damage. The pathology of the liver, and slight atrophy and degeneration of the hepatic cells, may also be interpreted as effects of overtaxed functional activity consequent to the loss of blood proteins. While offering no substitute, they believe that any name implying a renal origin, such as nephrosis or tubular nephritis, is not appropriate to this disease.

Transfusion of Blood in Bright's Disease.—In cases of Bright's disease treated by other clinics or physicians, Mosenthal and Ashe have noted that transfusions of blood have been resorted to without untoward results; however, many clinicians fear the use of blood transfusions in nephritic patients because of damage that might be induced in the kidneys. This fear seems not to be the result of actual experience but to be based merely on certain preconceived impressions. From their own observations and those in the literature, they believe that anuria and other complications of transfusion are rare and, furthermore, are not more common in cases of Bright's disease than in other conditions. Several instances of nephritis and anuria are quoted, in which transfusions were followed by distinct improvement in the activity of the kidneys; in their experience, transfusions of blood have no distinct diuretic effect and they believe that when an increased output of urine resulted it was due to the recovery of the kidney function independently of the added blood. Transfusions of blood in Bright's disease do not raise the blood pressure, do not injure the kidneys, and neither relieve nor aggravate uremic symptoms; they furnish the most suitable means of treating the secondary anemia accompanying marked renal insufficiency; in one case of anasarca complicating a chronic diffuse nephritis, neither the subcutaneous edema nor the ascites was relieved by raising the hemoglobin and red blood cells to normal levels by means of repeated transfusions. The principal indication for the transfusions of blood in Bright's disease is in the relief of the progressive secondary anemia accompanying impairment of renal function. In such cases it is impossible to remedy the condition by a high-protein diet, as retention uremia would be a sequel. Transfusions will ameliorate a serious condition for a long period when the kidneys are moderately involved, for a short time only if the renal parenchyma is largely destroyed. Several successive transfusions are, as a rule, necessary to restore the hemoglobin and red blood cells to an approximately normal level. The procedure may have to be repeated at intervals if the secondary anemia recurs.

Etiology of Erythema Nodosum in Children.—Eight cases are reported by Dickey. He says that erythema nodosum may occur in nontuberculous individuals or in those infected with the tubercle bacillus. The great majority of cases of erythema nodosum in children are associated with a tuberculous infection and most of the infections are initial and recent. Most children who have erythema nodosum exhibit marked hypersensitiveness to tuberculin given intracutaneously. There may be associated, in addition to the tuberculous infection, other conditions which possibly influence the hypersensitiveness to tuberculin. In many cases of erythema nodosum in children, epituberculous lesions in the pulmonary parenchyma can be demonstrated by roentgenograms of the chest. In the series reported, none of the individuals observed were known to develop an active tuberculous lesion of the lung. The lesions of erythema nodosum, the epituberculous lesions and the positive skin tuberculin reactions are similar histologically. As erythema nodosum is usually associated in children with early tuberculous infections, proper treatment for the latter condition gives a favorable prognosis as far as tuberculosis is concerned.

Antistreptococcus Serum for Patients with Rheumatic Fever.—If a hypothetic toxin or some peculiar bacterial fraction or autolysate is responsible for the various manifestations of the disease, Hitchcock et al. assert that these substances are elaborated in varying amounts and intensity over long periods; hence it is improbable that a serum effect, which at best can be of only short duration, would be ultimately successful. Their observations lead to the conclusion that antistreptococcus serum has no permanent antirheumatic influence and that acute antipyretic, antiarthritic and antitoxic effects can be obtained more certainly from salicylates or neocinchophen. Whether the favorable effects that followed a combination of these drugs with serum in a few cases of pericarditis were anything more than fortuitous is open to discussion. Of this one can be certain; that antistreptococcus serum has in no way replaced the long-established therapy of rheumatic fever, nor does it apparently add enough to warrant its universal adoption. The unpleasant reactions sometimes attendant on its application have not been outbalanced by a reciprocal certainty of therapeutic benefit.

Blood Transfusion in Acute Infectious Diseases.—One hundred cases have been studied by Landon. They include cases of diphtheria, scarlet fever, measles, pertussis, poliomyelitis, varicella, typhoid, streptococcus septicemia and postmeasles encephalitis. Blood transfusion appears to be contraindicated in diphtheria complicated by myocarditis, and in laryngeal diphtheria particularly when bronchopneumonia is present. It is a valuable adjuvant in the preoperative and postoperative care of mastoiditis, sinus thrombosis and empyema, particularly when these conditions are complications of scarlet fever or measles. It is of value in the treatment of bronchopneumonia complicating measles and pertussis. As a general tonic in protracted cases in which anemia and malnutrition develop, its use is strongly indicated.

Venous Murmurs in Hepatic Cirrhosis and Murmurs of Congenital Heart Disease.—Gwyn asserts that clefts in the sternum due to some defect in the process of ossification constitute a not uncommon anomaly. The collateral circulation that develops in the course of cirrhosis of the liver may easily provide venous trunks, which may pass through such clefts en route to sinuses of considerable size beneath the sternum. A loud murmur may be produced by the fluid eddies that will be present in such vascular connections. Such murmurs, if continuous and found in the neighborhood of the third, fourth or fifth interspaces of the left side, may well be confused with those of congenital heart disease. Before coming to any conclusion in connection with continuous murmurs over the heart area, finger pressure should be carefully applied to areas immediately adjacent to the sternum.

Chronic Cholecystitis.—A clinical study of a considerable number of cases of chronic cholecystitis has been made by Jones and Palmer for the purpose of correlating the "direct" and the "indirect" evidence of the presence of gallbladder disease. It has been shown that the proper correlation of these factors leads to a remarkably accurate clinical diagnosis of gallbladder disease—from 95 to 97 per cent of correct diagnoses. A method is given by which, with a high degree of safety, cases of chronic cholecystitis that should be considered surgical in type may be segregated. Based on the metabolic gradient theory of peristalsis, a logical explanation is given for the presence of most of the preoperative symptoms of chronic cholecystitis and also for the presence of the same symptoms remaining after operation. A workable method of postoperative medical treatment, based on this theory of peristalsis and on the constitutional type of the patient, is also given. The calcium oxide content of the gallbladder wall increases in percentage, for some unknown reason, as the gallbladder increases the density of its shadow on direct roentgen films. The content varies from an average of 0.02 per cent of calcium oxide, dry weight, in presumably normal gallbladders, which cast no shadow on the direct film, to an average of 0.16 per cent of calcium oxide, dry weight, in those gallbladders which cast a dense shadow on the direct film. No explanation is given for this finding, and its relation, if any, to shadow production on the direct film has not been determined.

Visceral Pain.—Rudolf and Smith aver that true visceral pain exists. It is usually dull but may be acute. Such visceral pain may occur alone or be accompanied by referred pain, which will appear in the distribution of the somatic nerves that come from the segment of the central nervous system with which the affected visceral nerves are connected. In many instances the referred pain is the only one that reaches the level of consciousness. Referred pain is more easily relieved than is that coming from the source of the irritation. This relief can be obtained by the use of various anodyne applications and especially by the infiltration of the skin by anesthetics, such as procaine hydrochloride. Often such anodynes will also, to a certain extent, relieve the deep suffering, but sometimes this is not the case and the afferent impulses from the source of irritation may, without any amplification from the periphery, be sufficient to reach the sensorium. When a referred pain is present it may be relieved either by attacking it at its distribution or, more specifically, by directly treating the cause of the irritation. The theory advanced here is that for referred pain to occur it is essential that the whole sensory reflex arc be intact.

American Journal of Ophthalmology, Chicago

13: 847-942 (Oct.) 1930

Theoretical and Practical Notes on Glaucoma. C. Hamburger, Berlin. —p. 847.
Central and Paracentral Homonymous Hemianopic Scotomas. O. Barkan and H. Barkan, San Francisco.—p. 853.
Perimetry: Preliminary Work on Diagnostic Scale for Form Field with a 0.17 Degree Stimulus. C. E. Ferree, G. Rand and M. M. Monroe, Baltimore.—p. 859.
Concerning Contact Glasses. R. Von der Heydt and H. Gradle, Chicago.—p. 867.
Tendon Transplantation for Paralysis of Superior Rectus. L. C. Peter, Philadelphia.—p. 869.
Surgery of Closed Pupil. A. E. Bulson, Fort Wayne, Ind.—p. 871.
Bacterial Flora of Normal Conjunctiva with Comparative Nasal Culture Study. R. A. Keilty, Washington, D. C.—p. 876.
Primary Tumors of Optic Nerve: Case. G. A. Mathewson, Montreal. —p. 880.
Rat Bite of Eyelids Resulting in Rat-Bite Fever. C. M. Swab, Omaha. —p. 884.
Condylomata at Inner Canthi: Case. E. B. Gresser, New York. —p. 886.
Historic Memorabilia Regarding Visual Field and Perimetry. H. McI. Morton, Minneapolis.—p. 888.
Color Photography for Improved Teaching of Ophthalmology. L. D. Redway, New York.—p. 891.

American Journal of Surgery, New York

9: 413-638 (Sept.) 1930

Acquired Contractures of Hand. S. L. Koch, Chicago.—p. 413.
Compression Fractures of Spine. F. Christopher, Evanston, Ill.—p. 424.
Deformities and Obstruction of Duodenum. A. G. Brenizer, Charlotte, N. C.—p. 430.
Lymphangioma of Mesentery. W. Crane, Oakland, Calif.—p. 441.
Sarcoma of Stomach: Four Cases. R. D'Aunoy and A. Zoeller, New Orleans.—p. 444.
Evaluation of Roentgen Examination in Duodenal Ulcer. C. D. Enfield, Louisville, Ky.—p. 465.
Carcinoid Tumors of Small Intestines. G. T. Pack, New York, and A. H. Davis, Tuscaloosa, Ala.—p. 472.
Route of Metastasis in Cancer of Breast. A. A. Salvin, New York. —p. 478.
Pseudoperitonitis Due to External Traumatism. F. S. Wetherell, Syracuse, N. Y.—p. 480.
Calculus of Upper Urinary Tract. A. R. Stevens and C. W. Collings, New York.—p. 484.
Gonorrheal Infections of Bladder and Kidneys. W. S. Pugh, New York.—p. 492.
Posterior Colpotomy for Pelvic Infection (Fraenkel Technic). H. C. Falk, New York.—p. 494.
Traumatized Kidney: Measuring Percentage of Disability. S. R. Woodruff, Jersey City, N. J.—p. 499.
Medical Aspects of Treatment of Benign Prostatic Hypertrophy. E. C. Andrus, Baltimore.—p. 502.
Prostatic Neoplasms: Diagnosis by Needle Puncture and Aspiration. R. S. Ferguson, New York.—p. 507.
Acute Appendicitis. C. Ginn, Dayton, Ohio.—p. 512.
Episiotomy as Means of Preserving Pelvic Floor During Labor: Simple Method of Suture. R. A. D. Gillis, Pittsburgh.—p. 520.
Adjustable Extension for Fractures of Upper Third of Femur. W. L. Gould, Albany, N. Y.—p. 527.
Chronic Inflammatory Vesical Neck Obstruction. J. A. Hyams and S. E. Kramer, New York.—p. 530.
Acute Hemorrhage from Corpus Luteum and Graafian Follicle. V. E. Johnson, Atlantic City, N. J.—p. 538.
Renal Tuberculosis: Changing Conceptions in Decade 1920-1930. H. C. Bumpus, Jr., and G. J. Thompson, Rochester, Minn.—p. 545.
Evaluation of Dental Roentgenographic Shadows. W. A. Lurie, New Orleans.—p. 552.
Operative Repair of Anterior Crucial Ligament of Knee Joint. A. Krida, New York.—p. 556.
Osteochondral Fracture of Knee Joint. A. Krida, New York.—p. 558.
Dislocation Between Fifth and Sixth Cervical Vertebrae: Delayed Operative Reduction and Fusion. A. Krida, New York.—p. 560.

American Review of Tuberculosis, Baltimore

22: 337-466 (Oct.) 1930

National Tuberculosis Association: Activities and Policies. L. R. Williams, New York.—p. 337.
Pulmonary Acoustics: IV. Notes on Percussion and Forced Vibrations. F. W. Bishop, Y. W. Lee, W. J. M. Scott and R. S. Lyman, Rochester, N. Y.—p. 347.
Cellular Reactions to Primary Infection and Reinfection with Tubercle Bacillus: II. Cells of Peritoneal Exudate Produced by Local Injection of Tubercle Bacilli into Normal Sensitized Guinea-Pigs. L. U. Gardner, Saranac Lake, N. Y.—p. 379.
Relations of Intrapulmonary Lymphoid Tissue to Bronchi in Rabbit. H. S. Willis, Baltimore.—p. 413.
*Review of Incubation Method of Sputum Concentration. H. C. Sweany and A. Stadnichenko, Chicago.—p. 420.
Variations of Tubercle Bacillus in Clinical Specimens. H. Stempa, Hartford, Conn.—p. 443.
*Serum-Calcium in Pneumonoconiosis. M. J. Sokoloff and A. Cantarow, Philadelphia.—p. 449.
*Immuniobiology in Diagnosis and Treatment of Pulmonary Tuberculosis. A. A. Lilien, New York.—p. 455.

Incubation Method of Sputum Concentration.—The results of 106,464 sputum examinations by the incubation-concentration method are reported by Sweany and Stadnichenko, of which 16,103 were positive. Fifteen per cent more positives were obtained by concentration than by direct smear in a control series of 1,500 specimens. No false positives were obtained in 6,283 examinations on negative controls consisting of observation cases, nontuberculous diseases and closed tuberculosis. Sixteen positive diagnoses were justifiably questioned because they did not conform to the clinical and roentgen observations at the time of the sputum examination. Of the sixteen, six were proved to be tuberculous; six were probably tuberculous; one was probably not tuberculous, but one in which the bacilli were avirulent or indifferent; while three were most probably errors in technic. This virtually leaves 4 errors in 16,103 positives, or 1 in about 4,000. Atypical acid-fast forms, when found alone, should be considered only suspicious until proved otherwise. There appear to be no more sources of error with this method than there are with any other method of similar technical manipulation.

Serum-Calcium in Pneumonoconiosis.—In a group of thirty patients with pneumonoconiosis studied by Sokoloff and Cantarow, fifteen of whom had an associated active tuberculous lesion, the serum-calcium ranged from 7.98 to 14.81 mg. per hundred cubic centimeters, being above normal in twenty-six patients, subnormal in one, and normal in three. The serum-calcium level bore no relation to the incidence or activity of the complicating tuberculous process. It is believed that the hypercalcemia in pneumonoconiosis is in all likelihood dependent on the increase in the carbon dioxide tension of the blood, which is an inevitable consequence of the pulmonary lesion.

Immunobiology in Diagnosis and Treatment of Pulmonary Tuberculosis.—Lilien finds that immunobiology in tuberculosis affords in some cases an early diagnosis in the preclinical stage and helps to explain the development of immunity, the biologic stage of the struggle in the given individual, and the prognosis. Therapeutically, in a great number of cases immunobiologic means can be advantageously used, together with other means in the fight against tuberculosis.

Annals of Medical History, New York

2: 453-586 (Sept.) 1930

Physician of Dance of Death. A. S. Warthin, Ann Arbor, Mich.—p. 453.
Benjamin Rush and His Critics. J. H. Lloyd, Philadelphia.—p. 470.
William Hunter's Obstetric Career. G. C. Peachey, London, England.—p. 476.
Infant Welfare Movement in Eighteenth Century. E. Caulfield, Hartford, Conn.—p. 480.
History of Craniotomy: Account of Methods Which Have Been Practiced and Instruments Used for Opening Human Skull During Life. L. Rogers, Cardiff, Wales.—p. 495.
Ancient Syphilitic Skull from Paracas in Peru. J. C. Tello, Lima, Peru, and H. U. Williams, Buffalo.—p. 515.
John Keats: Reactions of a Genius to Tuberculosis and Other Adversities. R. L. Pitfield, Philadelphia.—p. 530.
Papyrus Ebers. R. H. Major, Kansas City, Mo.—p. 547.
Tuberculosis and Genius as Manifested in St. Francis of Assisi. L. J. Moorman, Oklahoma City.—p. 556.
Influence of Claude Bernard on Physiologic Concepts. M. H. Goldstein, University, Va.—p. 560.

Archives of Dermatology & Syphilology, Chicago

22: 605-776 (Oct.) 1930

*Excretion of Bismuth: Potassium Bismuth Tartrate and Bismuth Salicylate. P. J. Hanzlik and H. G. Mehrtens, San Francisco.—p. 605.
Perniosis or Erythrocyanosis. V. Klingmüller and O. Dittrich, Kiel, Germany.—p. 615.
Dermatology in Mexico. H. Fox, New York.—p. 620.
*Perspiration: I. Bismuth. H. W. Schaffer, Philadelphia.—p. 624.
Keratoderma Blennorrhagicum: Two Cases; Gonococcus in Local Lesions in One Case. C. C. Barrett, Cleveland.—p. 627.
*Dermatophytid Complicating Tinea Cruris. C. M. Williams, New York.—p. 637.
*Perlèche of Adults: Five Cases Apparently of Mycotic Origin. E. A. Skolnik, Chicago.—p. 642.
Lupus Erythematosus Ungium Mutilans Treated with Gold and Sodium Thiosulphate: Case. L. McCarthy, Washington, D. C.—p. 647.
*Pyoderma (Echthyma) Gangrenosum: Clinical and Experimental Observations in Five Cases Occurring in Adults. L. A. Brunsting, W. H. Goeckerman and P. A. O'Leary, Rochester, Minn.—p. 655.
Dermatitis Nodularis Necrotica. F. J. Eichenlaub, Washington, D. C.—p. 681.
New Form of Therapy for Psoriasis. H. S. Campbell and K. Frost, Los Angeles.—p. 685.
*Lichen Nitidus: Case Treated with Gold Sodium Thiosulphate. H. D. Niles, New York.—p. 687.

Excretion of Bismuth.—The clinical excretion of bismuth after the intramuscular injection of comparatively small therapeutic doses of potassium bismuth tartrate and of bismuth salicylate, both in oil, was found by Hanzlik and Mehrtens to be prompt but slow, irregular, variable, prolonged and incomplete. After the injection of potassium bismuth tartrate, the peak of daily excretion was reached on the twelfth day after a single dose (0.056 Gm. of bismuth) and on the fifteenth day after two and three doses (0.112 and 0.168 Gm.) after the first injection. The maximum daily excretion of bismuth after one dose was 0.5 mg., after two doses 3.6 mg., and after three doses 2.4 mg. After the injection of bismuth salicylate, the peak of daily excretion was reached on the fifteenth day after a single dose (0.075 Gm. of bismuth) and on the tenth day after four doses (0.312 Gm.). The maximum daily excretion of bismuth after one dose was 1.5 mg., and after four doses 1.3 and 4.5 mg., respectively, in two subjects. The urinary excretion of bismuth after the use of potassium bismuth tartrate lasted at least seventy-two days after two doses and forty-two days after three doses; after bismuth salicylate, at least twenty-six days after one dose and seventy-nine days after four doses. The duration of excretion did not appear to be related to the dosage. The total urinary excretion of bismuth after the use of potassium bismuth tartrate was 54.6 per cent after two doses and 24 per cent after three doses; after bismuth salicylate, 25 per cent after one dose and 44.5 per cent after four doses. The bismuth unaccounted for remains in the body as a depot at the site of injection and in the viscera, traces being excreted probably for months. The median daily excretion of bismuth in feces after injection of potassium bismuth tartrate was about one twelfth of that in urine, the range being from 1 : 27 to 1 : 2; after bismuth salicylate the median was 1 : 8, the range being from 1 : 14 to 1 : 1.5.

Perspiration: Bismuth.—The sweat of four patients undergoing an intensive course of treatment with bismuth was found by Schaffer to contain no bismuth. Urine from the same subjects showed the presence of bismuth in amounts of from 0.6 to 1.5 mg. per hundred cubic centimeters. Blood of one subject was examined and did not show the presence of bismuth.

Dermatophytid Complicating Tinea Cruris.—A report is given by Williams of an eruption following the typical course of dermatophytid, and an appearance common in that eruption, consecutive to severe tinea cruris. It is believed to be the first case of the kind recorded.

Perlèche of Adults.—Five cases of perlèche are reported by Skolnik. They were all bilateral and chronic and were in adults. Organisms, identified as cryptococci, were cultivated from the lesions in each case. Inoculation of a pure culture of cryptococcus made under the normal breast produced a lesion similar to those at the angles of the mouth, which disappeared spontaneously within from three to four weeks. Cryptococci were isolated from this experimentally produced erosion on the first of three attempts, which was on the fifth day. No yeasts grew from scrapings cultured on the tenth and fifteenth days. Control cultures made from the angles of normal mouths revealed only bacteria.

Pyoderma (Echthyma) Gangrenosum.—An unusual type of ulceration of the skin is described by Brunsting et al. as occurring in five adults who were debilitated by reason of some infectious process elsewhere in the body. Four of the patients had chronic ulcerative colitis of years' standing; the other had chronic empyema. A striking parallel relationship was demonstrated between the activity of the cutaneous lesions and the major infectious focus, the intestine. Results of clinical and histologic studies compare favorably with those previously reported in studies of certain types of pyoderma. The similarity of this condition, amebiasis cutis and hemolytic streptococcus gangrene of the skin and subcutaneous tissues is considered. Amebas were not demonstrated in cutaneous lesions or stools. On the other hand, hemolytic streptococci and staphylococci were found with consistent regularity in the secretions from the ulcers and in the deeper tissues of specimens removed for biopsy. Intradermal inoculation of rabbits with the combination of the foregoing organisms produced an ulcerative area similar to the undermining lesions seen in the patients. The authors believe that the cutaneous manifestations described as pyoderma gangrenosa are but one part of a generalized infectious syndrome characterized by a marked lowering of bodily resistance to the invading organisms. Healing of the cutaneous lesions is dependent on the successful treatment of the systemic disease.

Lichen Nitidus Treated with Gold Sodium Thiosulphate.—The most striking point in Niles's report is that a case of lichen nitidus, a disease supposed by many to be of tuberculous origin, cleared up during the administration of gold sodium thiosulphate, although true tuberculosis of the skin rarely, if ever, responds to this treatment. A parallel might be drawn with lupus erythematosus, which likewise has been presumed to be of tuberculous etiology and yet reacts uniformly well to aurotherapy.

Archives of Neurology & Psychiatry, Chicago

24: 667-882 (Oct.) 1930

Psychiatry of Our Colonial Forefathers. S. E. Jelliffe, New York.—p. 667.
William Cowper, English Poet. J. H. Lloyd, Philadelphia.—p. 682.
Staining Nerve Fibers in Mounted Sections with Alcoholic Silver Nitrate Solution. H. A. Davenport, Chicago.—p. 690.
Experimental Lesions in Tuber Cinereum of Dog, Followed by Epileptiform Convulsions and Changes in Blood Chemistry. L. O. Morgan and C. A. Johnson, Chicago.—p. 696.
Permeability of Hemato-Encephalic Barrier as Determined by Bromide Method. S. T. Gordy, Byberry, Pa., and S. M. Smith, Chicago.—p. 727.
Lesions of Frontal Lobe. E. Sachs, St Louis.—p. 735.
*Takata-Ara Colloidal Test with Spinal Fluid. L. J. Karnosh and H. N. King, Cleveland.—p. 743.
Hereditary Factors in Manic-Depressive Psychosis. H. A. Paskind, Chicago.—p. 747.
*Influence of Intercurrent Febrile Disorders on Preexisting Epilepsy. R. H Guthrie, Palmer, Mass.—p. 753.
*Encephalitis and Influenzal Pneumonia Following Vaccination: Case. R. Tuthill, Buffalo.—p. 759.
Pathogenesis of Amaurotic Idiocy. C. Schaffer, Budapest, Hungary.—p. 765.
Hereditary Optic Atrophy (Leber's Disease). H. H. Merritt, Boston.—p. 775.
Unique Postencephalitic Syndrome: Complete Pupillary Immobility, Hirschsprung Colon and Vesical Incontinence. D. M. Olkon and H. Beard, Chicago.—p. 781.
Use of Scannell Blood Transfusion Chamber in Lumbar Injection of Air. H. E. Le Fever, Columbus, Ohio.—p. 786.
Peculiarities of Behavior: Wandering Mania, Kleptomania, Dipsomania, Pyromania and Allied Impulsive Acts. B. Karpman, Washington, D. C.—p. 787.
Progress in Psychiatry: V. Eidetic Phenomena and Psychopathology. F. Wertham, Baltimore.—p. 809.

Takata-Ara Colloidal Test with Spinal Fluid.—From clinical experience with the Takata-Ara test Karnosh and King conclude that the test is not highly specific. While it is positive in about 82 per cent of the cases of metasyphilis, there is enough disagreement to make its value as a routine test in syphilis rather doubtful. It is frequently positive in other organic, nonsyphilitic conditions, such as cerebral arteriosclerosis, brain trauma and tumor. Although, in comparison with other colloidal reactions, the test is simple to carry out and to read, it has no advantage over the Weichbrodt reaction.

Influence of Intercurrent Febrile Disorders on Preexisting Epilepsy.—Among eighty-five patients with influenza, Guthrie says that slightly more than half showed a decrease in the number of convulsions following this disease; however, the total number of convulsions in all cases was slightly increased. Among seventeen patients with scarlet fever, a great majority had more convulsions after the acute illness than before, and the total number of convulsions increased following the acute infection; however, the decrease in number of seizures during the month of acute illness was most noticeable. After chickenpox, erysipelas, tonsillitis and diphtheria there was a slight decrease in the number of convulsions, but the number of patients showing this relative improvement was so limited that these apparently favorable results are considered practically negligible. The decrease in the number of seizures that occurred in 200 cases followed over 10.6 months before and 10.6 months after an acute febrile disorder was only 3.6 per cent. A gradual decrease has been noted in the frequency of seizures in patients showing progressive deterioration with definite neurologic signs. This probably offsets the almost negligible decrease in seizures (3.6 per cent) following acute febrile states. The most prominent feature of this analysis is the decrease in the number of seizures in most cases during the month of illness, and this is reflected in the comparison of total averages before, during and after the acute illness. The decrease in the number of seizures during the month of illness, as compared with the average monthly rate of convulsions for 10.6 months before and 10.6 months after the acute illness, amounts to 18.5 per cent. By grouping the respiratory diseases together (107 cases of influenza, pneumonia and whooping cough), the change in frequency of seizures is found to be slight. In these 107 cases the average monthly rate of convulsions previous to the acute illness was 5.9, during the month of acute illness 5.9, and following the acute illness 6.4. This gives an increase of 7.8 per cent after the febrile period and no decrease in convulsions during the month of illness as compared with previous months. The changes, then, are found chiefly among cases of nonrespiratory diseases, scarlet fever, mumps, measles, chickenpox, erysipelas, tonsillitis and diphtheria. In this group, composed of ninety-three cases, the monthly rate of convulsions previous to the acute illness was 6.9, during the month of acute illness 4.2, and following the month of acute illness 5.7. These figures give a decrease of 17 per cent following the acute illness as compared with the rate before the acute illness. In this group there is also a decrease in seizures of 33.33 per cent during the month of acute illness as compared with the average rate before and after the acute disease.

Encephalitis and Influenzal Pneumonia Following Vaccination.—A case of encephalitis and influenzal bronchopneumonia occurring in a child twelve days after vaccination for variola is described by Tuthill. Since influenzal encephalitis as an entity has not been established, the clinical diagnosis rested between a sporadic case of encephalitis epidemica and postvaccinal encephalitis. The histopathologic observations in the brain were not similar to those found in epidemic encephalitis, since there was no perivascular infiltration of the gray substance around the ventricles and sylvian aqueduct, except in the lateral areas of the thalamus and the caudate nucleus. The chief areas of perivascular infiltration were in the centrum ovale. The infiltrations in the basal ganglions, the pons and the cerebellum were slight. There were no infiltrations in the meninges, the cord or the medulla oblongata. In spite of some dissimilarity to the reported cases of postvaccinal encephalitis, the histopathology on the whole conforms to that of this disease.

Florida Medical Assn. Journal, Jacksonville

17: 103-148 (Sept.) 1930

Acute Pancreatitis from Diagnostic Standpoint. W. W. Massey, Quincy.—p. 111.
Filariasis Bancrofti. E. S. Nichol, Miami.—p. 116.
Gonorrhea in Woman. J. E. Hall, Miami.—p. 121.
Nonunion of Fractures. J. D. Bell, Pensacola.—p. 124.
Perforation of Cecum by Toothpick: Case. T. H. Wallis, Ocala.—p. 127.
Duties of Obstetrician. H. Q. Jones, Fort Myers.—p. 129.

Georgia Medical Assn. Journal, Atlanta

19: 363-410 (Sept) 1930

Plasmochin in Treatment of Malaria. R. L. Miller, Waynesboro.—p. 363.
Malaria Control in Dougherty County. J. A. Redfearn and T. H. D. Griffitts, Albany.—p. 365.
Treatment of Hemoglobinuric Fever. H. M. Tolleson, Habira.—p. 369.
Acute Poliomyelitis. H. I. Reynolds, Athens.—p. 374.
Belladonna in Abdominal Diagnosis and Treatment. T. Johnson, Atlanta.—p. 380.
Review of Sociological Section of National Tuberculosis Association, Atlantic City, May, 1929. E. A. Bancker, Jr., Atlanta.—p. 384.
Diagnosis and Management of Breech Presentations. R. B. Crichton, Atlanta.—p. 392.

Journal of Experimental Medicine, Baltimore

52: 457-647 (Oct. 1) 1930

*Immunity to Poliomyelitis in Mothers and New-Born as Shown by Neutralization Test. W. L. Aycock and S. D. Kramer, Burlington, Vt.—p. 457.
*Cultivation of Vaccine Virus. C. P. Li and T. M. Rivers, New York.—p. 465.
Standardization of Antipneumococcic Serum Types I and II. J. Zozaya, J. Boyer and J. Clark, Glenolden, Pa.—p. 471.
Specific Precipitation and Mouse Protection in Type I Antipneumococcus Serum. M. Heidelberger, R. H. P. Sia and F. E. Kendall, New York.—p. 477.
Effect of Inflammatory Reactions on Tissue Immunity. F. M. Hanger, New York.—p. 485.
*Host Factors in Pathogenesis of Pneumococcus Pneumonia: I. Reaction of Lungs to Pneumococcus Autolysate in Sensitized Rabbits. E. A. Sharp and F. G. Blake, New Haven, Conn.—p. 501.
A-Avitaminosis in Chickens: I. Lesions of Respiratory Tract and Relation to Infectious Diseases. O. Seifried, Princeton, N. J.—p. 519.
Id.: II. Lesions of Upper Alimentary Tract and Relation to Infectious Diseases. O. Seifried, Princeton, N. J.—p. 533.
Distribution of Friedländer's Bacilli of Different Types. L. A. Julianelle, New York.—p. 539.
Diseases of Lymphoid and Myeloid Tissues: I. Chemical Metabolism of Normal and Pathologic Lymph Nodes. H. Jackson, Jr., F. Parker, Jr., and E. C. Glover, Boston.—p. 547.
Serologic Reactions in Pneumonia with Nonprotein Somatic Fraction of Pneumococcus. W. S. Tillett and T. Francis, Jr., New York.—p. 561.

- *Cutaneous Reactions in Pneumonia: Development of Antibodies Following Intradermal Injection of Type-Specific Polysaccharide. T. Francis, Jr., and W. S. Tillett, New York.—p. 573.
- Immunologic Studies in Relation to Suprarenal Gland: VI. a. Trypanosoma Lewisi Infection in Normal Albino Rats. VI. b. Trypanosoma Lewisi Infection in Suprarenalectomized Adult Albino Rats. J. Marmorston-Gottesman, D. Perla and J. Vorzimer, New York.—p. 587.
- T. Lewisi Infection in Albino Rats: I. Effect of Splenectomy on T. Lewisi Infection in Albino Rats and Protective Action of Splenic Autotransplants. II. Effect of Thymectomy and Bilateral Gonadectomy on T. Lewisi Infection in Albino Rats. D. Perla and J. Marmorston-Gottesman, New York.—p. 601.
- *Bacterium Granulosis in Relation to Trachoma: Recovery from Experimentally Infected Monkeys and from Human Trachoma. E. B. Tilden and J. R. Tyler, New York.—p. 617.
- Transmission of Periodic Ophthalmia of Horses by Means of Filtrable Agent. A. C. Woods and A. M. Chesney, Baltimore.—p. 637.

Immunity to Poliomyelitis in Mothers and New-Born.—Neutralization tests made by Aycock and Kramer for the virus of poliomyelitis on blood serum of urban mothers and their new-born infants showed that immunity was present in ten out of twelve (83 per cent) infants and in ten out of twelve (83 per cent) mothers, with a complete correspondence between mother and infant. These tests point to passive transmission of immunity from mother to infant. Previous tests on other children (aged from 1 to 5 years) indicate that immunity in infants is transitory. Previous observations concerning the extent of immunity in urban adults are confirmed and extended. The results of these tests are in accord with the age distribution of poliomyelitis and parallel corresponding observations in diphtheria.

Cultivation of Vaccine Virus.—A strain of neurovaccine virus was cultivated by Li and Rivers in a medium consisting of minced chick embryo suspended in Tyrode's solution. The virus on cultivation apparently lost none of its essential characteristics. The culture virus can be preserved and stored for long periods of time. Furthermore, the preserved virus can be used to initiate fresh cultures.

Host Factors in Pathogenesis of Pneumococcus Pneumonia.—Sharp and Blake endeavor to determine whether animals exhibiting cutaneous hypersensitiveness to pneumococci would show an acute inflammatory reaction in the lungs when pneumococcus autolysate was brought into contact with the pulmonary tissues and, if so, whether the pulmonary reaction might be shown to be due to the allergic state of the animal, rather than to intrinsic properties of the autolysate. From their results it may be concluded that there is in rabbits a fairly close parallelism between cutaneous and pulmonary hypersensitiveness to pneumococcus autolysate and that the inflammatory response of the pulmonary tissue resulting from contact with the autolysate depends on the allergic state of the animal rather than on inherently injurious substances in the autolysate. The observations are in harmony with the theory that allergy may play a part in the pathogenesis of pneumococcus pneumonia in man.

Cutaneous Reactions in Pneumonia.—Francis and Tillett assert that the majority of patients convalescent from pneumonia due to types I, II and III pneumococci develop at the time of recovery circulating antibodies for the homologous type of organisms. At the same time an immediate wheal and erythema reaction followed the intradermal injection of the homologous type-specific polysaccharide in 100 per cent of type I patients, 58.8 per cent of type II patients, and 44 per cent of type III patients. In a group of eighteen patients repeatedly tested with the type-specific polysaccharides, ten developed in the second or third week of convalescence circulating antibodies for one or more heterologous types. In none of twenty-one control patients was this phenomenon observed. It is suggested that the development of circulating antibodies for heterologous types of pneumococci was associated with the previous intradermal injections of the type-specific polysaccharides.

Bacterium Granulosis in Relation to Trachoma.—Six additional strains of *Bacterium granulosis* have been isolated by Tilden and Tyler from cases of trachoma occurring in the Indian schools of Arizona. The cultures thus obtained are identical morphologically and culturally with those isolated by Noguchi and have induced the same chronic granular conjunctivitis in monkeys. Several additional cultural and biologic characteristics of *Bacterium granulosis* are described. Of importance is the fact that cocaine, in contradistinction to procaine, has a bactericidal effect on the organism. This fact, in view of the common use of cocaine for anesthesia, may explain the negative results of cultivation experiments reported by some workers.

Journal of Infectious Diseases, Chicago

47: 171-291 (Sept.) 1930

- Quantitative Determination of Alanine. A. I. Kendall and T. E. Friedemann, Chicago.—p. 171.
- Quantitative Determination of Pyruvic Acid in Biologic Substrates. A. I. Kendall and T. E. Friedemann, Chicago.—p. 176.
- Methods for Study of Resting Bacteria. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 186.
- Chemical Activity of Resting Bacillus Coli. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 194.
- Chemical Activity of Resting Bacillus Alcaligenes. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 206.
- Chemical Activity of Resting Bacillus Pyogenes-Foetidus. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 213.
- Chemical Activity of Resting Vibrio H/61. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 219.
- Chemical Activity of Resting Staphylococcus Aureus. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 223.
- Chemical Activity of Resting Bacillus Pyocyaneus. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 229.
- Glyoxalase-Like Action of Certain Resting Bacteria. A. I. Kendall, T. E. Friedemann and Mitzuteru Ishikawa, Chicago.—p. 237.
- Utilization of Certain Substituted Carbohydrates by Bacteria. A. I. Kendall and C. E. Gross, Chicago.—p. 249.
- Production of Histamine by Certain Strains of Gas Bacillus. A. I. Kendall and E. Gebauer, Chicago.—p. 261.
- Quantitative Response of Intestine from Sensitized Guinea-Pigs to Homologous Protein and Histamine. A. I. Kendall and F. O. Shumate, Chicago.—p. 267.
- Anaphylactic Reaction in Smooth Muscle. A. I. Kendall, Chicago. —p. 284.

Journal of Nervous & Mental Disease, New York

72: 369-488 (Oct.) 1930

- *Syndrome of Amyotrophic Lateral Sclerosis in Epidemic Encephalitis. A. M. Ornsteen, Philadelphia.—p. 369.
- Mental Disease and Melting Pot. B. Malzberg, New York.—p. 379.
- Mental and Emotional Phenomena of Some Psychoses in Relation to Blood Pressure: Diagnostic and Prognostic Significance of Latter. A. Gordon, Philadelphia.—p. 396.
- Comment on Mechanism of Narcolepsy. C. P. Wagner, Denver.—p. 405.

Syndrome of Amyotrophic Lateral Sclerosis in Epidemic Encephalitis.—A case of acute epidemic encephalitis soon followed by bulbar palsy and later a syndrome of amyotrophic lateral sclerosis is reported by Ornsteen. A prominent feature of the case is universal myoclonia affecting all of the muscles of the body from the masseters and buccinators down to the calves. Lesions of the anterior horns and pyramidal tracts are inferred to explain the amyotrophic lateral picture, and the pathologic findings by Wimmer in two similar cases are offered in evidence. Lesions of the mesencephalon are considered to be the cause of the universal myoclonia rather than ganglion cell irritation in the motor nuclei of cranial nerves and anterior spinal horns. Amyotrophic lateral sclerosis may be related to an ancient infection. Authoritative opinions as to the nature and causation of amyotrophic lateral sclerosis are reviewed.

Medical Journal and Record, New York

132: 313-364 (Oct. 1) 1930

- General Anesthesia with Sodium Amytal. J. E. Struthers, Denver. —p. 313.
- Endocarditis. A. E. Mark, Hollywood, Calif.—p. 315.
- Place of Periodic Health Examination in Practice of Medicine Today. O. H. Leber, New York.—p. 318.
- Myofascitis. W. E. Fitch, Bedford, Pa.—p. 320.
- Diphtheria and Typhoid Carriers: Suggestions on How Best to Ward Off Epidemics. M. Feldman, New York.—p. 325.
- Value of Cecostomy and Enterostomy in Acute Peritonitis. H. Pike, New York.—p. 328.
- Medical Education. O. T. Osborne, New Haven, Conn.—p. 329.
- Pityriasis Lichenoides et Varioliformis Acuta (Habermann). F. Wise and M. B. Sulzberger, New York.—p. 331.
- Diagnosis and Treatment of Scabies. D. W. Montgomery and G. D. Culver, San Francisco.—p. 334.
- Early or Warning Signs of Impending Gangrene in Diabetes. D. W. Kramer, Philadelphia.—p. 338.
- Actinomycosis: Clinical Pathologic and Bacteriologic Study. H. P. Jacobson, Los Angeles.—p. 342.
- Colloidal Metals in Treatment of Malignancy. N. Alpert, Baltimore. p. 347.
- La Maladie de la Baie de St. Paul. W. R. Riddell, Toronto—p. 349.
- Medicinal Virtues of Sponges. E. Podolsky, New York.—p. 350.

Michigan State M. Soc. Journal, Grand Rapids

29: 691-756 (Oct.) 1930

Passing of Family Doctor and Practice of Future. J. D. Brook, Grandville.—p. 691.
Modern Medicine. W. H. Sawyer, Hillsdale.—p. 696.
Legal Aspects of Roentgen Ray. S. W. Donaldson, Ann Arbor.—p. 700.
*Infarcts of Cardiac Origin. M. A. Mortensen, Battle Creek.—p. 710.
Malignant Melanoma. P. D. Amadon, Ann Arbor.—p. 713.
Backache as Gynecologic Symptom. L. G. Baldwin, Ann Arbor.—p. 718.
Rheumatic Cardiac Disease: Newer Concepts of Rheumatic Fever. F. A. Willius, Rochester, Minn.—p. 721.
Hydrops Gravidarum: Three Cases B. L Lieberman, Detroit.—p. 727.
Famous Men in Medical History: I. William Beaumont. C. L. Hudson, Tyler, Texas.—p. 729.
Work of Public Health Committee. L. O. Geib, Detroit.—p. 734.
Michigan's Department of Health. C. C. Slemons, Lansing.—p. 739.

Infarcts of Cardiac Origin.—Mortensen asserts that the greater percentage of infarcts are of cardiac origin, thrombosis occurring in the heart in the following order of frequency: (1) right auricle; (2) left ventricle; (3) left auricle; (4) right ventricle. Thrombosis in either side of the heart may produce infarcts in both pulmonary and peripheral circulation when a patent foramen ovale exists, but these cases are rare. The three types of emboli originating in the heart are (1) small mycotic vegetations associated with endocarditis; (2) a large type of emboli that develop where circulation is retarded or stagnant, as in auricular appendages, apexes of ventricles, and between columnae carni; (3) ball thrombus, which is rare and always in the left auricle and associated with mitral stenosis. Blood platelets are believed to be the nucleus of a thrombus, an accumulation of these being caused by injury (bacterial or otherwise) to endothelial surfaces. Stasis in the blood stream is a predisposing factor, and cardiac disorder nearly always precedes the formation of thrombi. Types of cases in which thrombosis and emboli are liable to occur are discussed, and the management of cases is outlined.

Public Health Reports, Washington, D. C.

45: 2221-2275 (Sept. 19) 1930

Electron Equilibria in Biologic Systems. IV. Adaptation of Glass Electrode to Continuous Measurement of Hydrogen Ion Concentration of Circulating Blood. C. Voegtlin, F. DeEds and H. Kahler.—p. 2223.

45: 2277-2363 (Sept. 26) 1930

Mortality from Influenza and Pneumonia in Fifty Large Cities of United States, 1910-1929. S. D. Collins, W. H. Frost, M. Gover and E. Sydenstricker.—p. 2277.

45: 2365-2427 (Oct. 3) 1930

Training of Health Officers. J. W Mountin.—p. 2378.
Zone Phenomenon in Human Serum Comparison of Antitularense with Antiabortus Serum. R. R. Spencer —p. 2383.

Radiology, St. Paul

15: 437-530 (Oct.) 1930

New Instrument for Measuring X-Radiation. G. Failla, New York. —p. 437.
*Early Recognition of Gastric Ulcer and Carcinoma as Revealed by Roentgen Studies. M. Feldman, Baltimore.—p. 449.
Quantum Energy of Roentgen Rays: New Method of Measuring It. A. Mutscheller, New York.—p. 460.
*Paravertebral Abscess: Early Roentgen Sign of Tuberculous Spondylitis. L. G. Rigler, W. H. Ude and M. B. Hanson, Minneapolis.—p. 471.
Urography by Uroselectan. I. S. Hirsch, New York.—p. 480.
*Concept of Arthritis. L. H. Mayers, Chicago.—p. 487.
Radiologic Evidences of Urologic Diseases in Infancy and Childhood. P. B. Goodwin, Peoria, Ill.—p. 498.

Gastric Ulcer and Carcinoma as Revealed by Roentgen Studies.—Feldman asserts that a stereotyped, fixed or straight line appearance of the curvatures of the stomach as revealed by roentgen examination occurs as the result of a thickening, induration and infiltration of the tissues of this organ. Diminished or absent peristalsis or a break in the peristaltic wave is probably the earliest roentgen sign of gastric disease. A small stomach, located high, presenting the fixed and stereotyped appearance, emptying rapidly, even though showing no filling defect, is frequently the result of a carcinoma at the cardia. Spasm is frequently the result of a gastric lesion; the incisura is a typical example. It occurred in 16 per cent of the cases of ulceration. The presence of a filling defect is not always necessary in order to establish the roentgen diagnosis of a gastric lesion. The proper interpretation and evaluation of the roentgen signs here described is highly important in the early diagnosis of gastric disease.

Paravertebral Abscess: Early Roentgen Sign of Tuberculous Spondylitis.—Cases are cited by Rigler et al. as proof that paravertebral abscess occurs commonly in tuberculosis of the thoracic vertebrae but is clinically unrecognized in many cases. Its roentgen diagnosis is important because it is almost pathognomonic of tuberculosis spondylitis. It may be the earliest roentgen sign of tuberculous spondylitis appearing before there are any visible changes in the bodies of the vertebrae. Two cases of this type are reported. It may be present in characteristic form while the changes in the vertebral column are still minimal or not entirely diagnostic roentgenographically. Two cases of this type are reported. Paravertebral abscess may overlap the shadow of the heart in the ordinary chest roentgenogram, simulating a mediastinal process.

Concept of Arthritis.—Mayers concludes that arthritis is a chronic infective condition, in which the joint manifestations are the end-products of a long period of intoxication, which intoxication results from an infective process usually with the streptococcus.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

47: 169-254 (Autumn) 1930

*Epilepsy. J. V. Blachford.—p. 169.
*Five Years' Experience of Surgery in Exophthalmic Goiter. A. R. Short. —p. 185.
Treatment of Exophthalmic Goiter. C. E. K. Herapath.—p. 193.
*Changes in Spleen in Acute Pyogenic Infections. T. F. R. Hewer.—p. 197.
Von Recklinghausen's Disease (Multiple Neurofibromata) with Spontaneous Fractures: Case. L. P. Ashton.—p. 219.
*Origin and Significance of Tuberculosis of Tracheobronchial Lymph Nodes of Lung. L. R. Jordan.—p. 225.

Epilepsy.—Blachford concludes from his review that: 1. Ordinary grand mal is produced by impulses that arise in the neostriate body and act on the cortex. 2. The mental condition of epileptic patients immediately preceding and in the intervals between the seizures is due to irritation of cortical sensorimotor cells by impulses originating in the striate body. 3. The neostriate body, consisting of the putamen and the caudate nucleus, is the center for the association of the muscle sense with the other senses. And as a corollary that: 4. Drugs which act primarily on the basal ganglions in epilepsy are to be preferred to those which act directly on the cortex, as being more efficient and less likely to damage the more highly developed but less definitely organized cortical cells.

Five Years of Surgery in Exophthalmic Goiter.—In Short's opinion, all patients with toxic adenoma of the thyroid should be operated on, and all patients with classic exophthalmic goiter after a year's duration, unless mentally deranged. There is a good deal of reason for operating also in early cases. Auricular fibrillation and glycosuria will probably clear up after subtotal thyroidectomy.

Changes in Spleen in Acute Pyogenic Infections.—One hundred and eighty cases of acute infections, irrespective of whether they were said to present "acute splenic tumors" or not, were analyzed by Hewer in order to determine the degree of splenic change by observing the relative number of large mononuclear cells present in the pulp. The results of this study show that in acute pyogenic infections splenomegaly is due to an increase in the number of cells in the pulp, and in the malpighian bodies in some cases. The most striking cells that are present are large basophilic nongranular mononuclear cells, which are identical with myeloblasts. The degree of splenic change corresponds with the leukocytosis. The identity of the infecting organism is of less importance *quâ* the spleen than the grade of leukocytosis it produces. Pyrexia alone does not produce "acute splenic tumor." The production of "acute splenic tumor" is not essential for, or directly related with, antibody formation.

Tuberculosis of Tracheobronchial Lymph Nodes of Lung.—Analysis and study of thirty-three cases has convinced Jordan that the majority of evidence at present points to tuberculous infection of the tracheobronchial glands being secondary to a primary air-borne infection in the lung tissue. Tuberculosis, especially of the tracheobronchial glands in children under 5 years, is not dormant, but in the majority of cases ends in fatal disease. A considerable proportion of acute miliary tuberculosis, especially with tuberculous meningitis, in adults has its origin in tracheobronchial tuberculosis. All the cases of tuberculous meningitis were blood-borne, and no explanation is offered for the absence of visible primary foci in these cases. Tuberculous infection in childhood increases resistance to the disease but at the same time is a source of danger.

Lancet, London

2: 673-724 (Sept. 27) 1930

Thermal Adjustment of Man and Animals to External Conditions. C. J. Martin.—p. 673.
*Guanidine-Like Substances in Blood in Experimental Yellow Fever. G. M. Findlay and E. Hindle.—p. 678.
Congenital Arteriovenous Fistula. D. De Witt Lewis.—p. 680.
*Excretion Urography. R. V. Cooke.—p. 686.
Value of Avertin in Unusual Circumstances: Case. J. Blomfield.—p. 689.
Lysozyme Content of Saliva in Psychotics. L. S. Penrose.—p. 689.
Adjuvants to Malarial Treatment of General Paralysis. J. H. Ewen.—p. 690.
Osteoclast with Screw Control. A. MacLennan.—p. 690.

Guanidine-Like Substances in Blood in Yellow Fever.—Findlay and Hindle conclude from their experiments that in experimental yellow fever in monkeys there is an increase in the blood content of guanidine-like substances, similar to that associated with other conditions involving liver necrosis. The increase in guanidine-like substances can be reduced by the administration of calcium lactate. Calcium lactate does not prevent death in monkeys suffering from yellow fever but does tend to prevent hemorrhages.

Excretion Urography.—When a cystoscope cannot be passed or ureteral catheterization (or any instrumentation) is undesirable, difficult or impossible, Cooke says he has at his disposal an alternative method of visualizing the renal pelvis and calices. In the presence of ureteral obstruction a clear ureterogram may be secured. The method may be of value in the investigation of the urologic case in the child; in cases of severe cystitis—tuberculous or otherwise—in which catheterization is difficult; in cases of profuse hematuria; in cases of urethral stricture and enlarged prostate; and in the subsequent examination of a kidney, the ureters of which have been transplanted. The shadow cast by the excreting renal substance itself is enhanced during the excretory process, so that the size and shape of the kidney substance are often clearly seen. The excretion rate and the intensity of the pyelograms give a graphic representation of the function of each kidney at the time. This fact in itself may be valuable in dealing with certain cases, such as hydronephrosis with blocked ureters. The excretion rate, which represents the total renal efficiency at the time, may be ascertained by measuring the output in the urine, or, more simply, by following the alterations in the specific gravity of the urine. This has not been found of much practical value. It is important in interpreting the results from the standpoint of function to bear in mind that the functional activity of a kidney can be temporarily inhibited, and the nonvisualization at a particular examination does not necessarily mean a permanently damaged kidney. The method has its limitations, since the shadows depend on renal function, and therefore no shadow, or an undecipherable one, may be obtained in pathologic renal conditions. To make a precise diagnosis, recourse to the older method may be necessary, and since in many cases cystoscopy is absolutely essential it is still quicker (and cheaper) to proceed to ureteral catheterization and retrograde pyelography in the average case. Excretion urography is as yet somewhat expensive and uncertain. There must always needs be a percentage of failures, but undoubtedly a most valuable accessory investigatory method has been placed in the hands of the profession.

2: 725-778 (Oct. 4) 1930

Need for Psychopathology. M. Culpin.—p. 725.
*Pulmonary Tuberculosis in General Practice. W. B. Wood.—p. 726.
*Thrombophlebitis Migrans. J. A. Ryle.—p. 731.
Treatment of Empyema in Children. D. Browne.—p. 733.
Acute Torsion of Spermatic Cord. H. Upcott.—p. 739.
Elimination of Arsenic After Sheep Dipping. T. Oliver.—p. 740.
Adenomyxomatous Polypoid Tumor of Stomach. G. N. Clark.—p. 740.

Pulmonary Tuberculosis in General Practice.—Wood stresses this idea: When a young person of either sex complains of a cough with expectoration, tuberculosis must always be borne in mind. It can be excluded with some confidence if five negative conditions are satisfied. It is unlikely that tuberculosis is responsible for the cough if: (1) there is no history of pleural effusion; (2) there is no history of hemoptysis; (3) no crepitations are heard after coughing in any danger zones; (4) no tubercle bacilli are found in three successive sputum examinations; (5) roentgen examination is negative. If the first four conditions are satisfied a short period of observation with expectant treatment may suffice, but if the practitioner's suspicions are aroused by the patient's appearance or manner, by a history of contact with infection, or by the continuance of symptoms for more than a fortnight, a roentgenogram is essential. If the services of a radiologist with special experience in chest work are not available, a second opinion should be obtained. In some cases a short period of institutional observation may be advisable.

Thrombophlebitis Migrans.—Thrombophlebitis migrans is defined by Ryle as a disease in which phlebitis appearing usually in small lengths of superficial peripheral veins is sometimes followed by symptoms of inflammation with small vascular obstructions in the lungs, the abdomen, and more rarely in the heart and the brain. Visceral thromboses may also precede or occur without superficial lesions. The disease tends to run a long and tedious and often interrupted course. Fever and leukocytosis commonly accompany each fresh development. Although it may give rise to serious illness and much anxiety, the prognosis is favorable, presumably because the thromboses are venous, because they do not as a rule spread to larger trunks, and because there is no associated septicemia. The pulmonary thromboses may be heralded by agonizing bouts of spasmodic pain or by ordinary pleuritic symptoms which precede hemoptysis, when it occurs, by hours or days. A faintly turbid and blood-stained pleuritic effusion sometimes follows. The abdominal thromboses are characterized by pain and distention and occasionally by melena. The symptoms of the cardiac and cerebral thromboses do not differ from similar lesions of other causation, but, as small veins rather than arteries are probably involved, prognosis again need not necessarily be regarded as unfavorable. Treatment is expectant and symptomatic. Liberal fluids and potassium citrate may reasonably be prescribed. Obvious focal infections should receive attention at the proper time. Perhaps the most important single conclusion to be drawn from a study of these cases is that thrombophlebitis of this type is to be remembered as an occasional cause of cerebral, cardiac, pulmonary and abdominal accidents that might otherwise prove difficult to explain. Five cases are reported by Ryle.

Medical Journal of Australia, Sydney

2: 351-380 (Sept. 13) 1930

*Local Venesection in Treatment of Snake Bite. C. H. Kellaway.—p. 351.
Influence of Extracts of Prickly Pear on Diabetes Mellitus. W. W. Ingram and G. V. Rudd.—p. 360.
White Cedar or Azedarach. J. MacPherson.—p. 363.
Treatment of Blindness Associated with Retinitis Pigmentosa. N. D. Royle.—p. 364.
Cerebrospinal Fever. W. E. Hasker.—p. 365.
Treatment of Deafness by Zund-Burguet Method. R. H. Bettington.—p. 366.

Local Venesection in Treatment of Snake Bite.—Experiments made by Kellaway on sheep injected with the venoms of the death adder and tiger snake have demonstrated the value of treatment by local venesection when this can be applied immediately. Those with copperhead and brown snake venoms were less satisfactory. Protection was afforded against from one to one and a half certainly lethal doses of the venoms of the death adder and tiger snake and against from one to one and a fourth certainly lethal doses of the venoms of the brown snake and copperhead. The ligatures in these experiments were applied above the carpal joint in the forelimb and therefore the blood flow to the ligated part, though nearly, was not always completely obstructed. This did not seriously affect the results when venesection was carried out at once, but when treatment was delayed to make the experiments more comparable with practical conditions the results were not so satisfactory. The certainly lethal doses of brown snake venom by subcutaneous and intravenous injection have been determined for sheep. The "thrombase" of this venom is extremely potent in this species, the subcutaneous-intravenous index being approximately 20. Despite this high index, treatment by simple ligature round the metacarpal bone was not effective. The "thrombase" of brown snake venom is apparently highly diffusible and, when injected subcutaneously or even intradermally, finds its way rapidly into the venous blood in sufficient concentration to cause death by intravascular coagulation. In bites by the brown snake it is urgently necessary to apply the ligature immediately and excise the bitten area. Treatment by venesection, as soon as this is practicable, should prove of definite value in cases in which excision has not been done. It is unlikely that univalent antiserum will ever be available for treatment of the bites of this snake or of other species of the genus *Demansia*. These experiments afford further evidence of the absorption of Australian snake venoms directly into the blood stream.

Tubercle, London

12: 1-48 (Oct.) 1930

Survey of Findings in Five Years' Work on Tuberculosis. J. A. Struthers.—p. 1. (C'td.)
Treatment of Tuberculosis with Turtle Vaccine. W. C. Fowler.—p. 12.
Results of Artificial Light Treatment for Tuberculosis. G. L. Cox.—p. 17.
*Significance of Quantitative Intradermal Tuberculin Reaction in Prognosis of Tuberculosis. J. W. Lobban.—p. 19.

Tuberculin Reaction in Prognosis of Tuberculosis.—From the results obtained with the intradermal tuberculin test in the tuberculous and in the control series of cases, Lobban is led to believe that the earlier the stage of disease and the less the degree of infection, a positive reaction can be obtained with a greater dilution of tuberculin. As the disease advances the patient fails to react to the greater dilutions, and lesser dilutions are necessary before a positive reaction can be obtained. Further, it becomes apparent that the intradermal tuberculin test in tuberculosis, when repeated at intervals, shows a more marked reaction when the condition is improving, and fails to appear or become positive when a lesser dilution is employed when the condition is retrogressing. It is thus a guide as to progress in addition to the clinical signs. A test that becomes more marked in reaction, e. g., from + to ++ or +++, gives an indication that the lesion is improving and is of good prognostic value, whereas when a patient fails to react to the original dilution of tuberculin used and repeatedly fails to react with a lesser dilution, the outlook is not hopeful.

National Medical Journal of China, Peiping

16: 325-504 (Aug.) 1930

Dissociation of Cholera Vibrio. H. Yu, P. H. Yang and C. C. Yang.—p. 325.
Effect of Animal Passage on Pathogenic Monilia. T. J. Kurotchkin and C. E. Lim.—p. 332.
*Serologic Relationship Among Yeastlike Fungi. C. E. Lim and T. J. Kurotchkin.—p. 338.
*Giardia Intestinalis in North China. S. M. Tao.—p. 347.
*Sclerema Neonatorum. Tung-Tou Chen.—p. 360.
Effect of Vitamin Deficiency on Light Sense in Cases of Xerosis and Pigmentation of Conjunctiva. C. H. Chou.—p. 365.
*Causes of Blindness Among Chinese. S. P. Chang.—p. 370.
Puncture and Irrigation of Maxillary Sinus. M. L. Hu.—p. 379.
Field of Otolaryngology in China. A. M. Dunlap.—p. 387.
Causes of Epidemics. J. W. H. Chun.—p. 395.
Hydatid Cyst in North China. H. H. Loucks.—p. 402.

Serologic Relationship Among Yeastlike Fungi.—A simple and sensitive method for the serologic study of several strains of monilias and *Saccharomyces* has been found by Lim and Kurotchkin through the use of the water soluble specific substance. The different monilias form a homogeneous group of organisms, the individual species of which are found to be closely related according to their cross serologic reactions. Monilias and *Saccharomyces* cannot be differentiated on the basis of their cross serologic reactions. The high sensitivity of the water soluble specific substance derived from the monilias and *Saccharomyces* suggests the use of this substance as an antigen in the serologic diagnosis of human infections due to yeastlike fungi.

Giardia Intestinalis in North China.—An analysis is given by Tao of 649 cases of positive *Giardia* infection examined at the Peiping Union Medical College Hospital from 1925 to 1930. A definite relationship between *Giardia* infection and gastro-intestinal symptoms could not be established. There are 249 patients, or 38.37 per cent, with gastro-intestinal symptoms and 400, or 61.63 per cent, without gastro-intestinal symptoms. The percentage of diarrhea is markedly high in young children. It gives 48.34 per cent of children from 1 to 5 years of age, 22.86 per cent of children from 6 to 15, and 15.75 per cent of adults. Children from 1 to 15 years of age are found to show 23.82 per cent of dyspepsia and 19.59 per cent of diarrhea in pure infection and 13.77 per cent of dyspepsia and 10.18 per cent of diarrhea in mixed infection. One has, however, to keep in mind that diarrhea is a common complaint in young children.

Sclerema Neonatorum.—The subcutaneous fat and the fat-free skin of eight sclerema and four nonsclerema babies were analyzed by Chen. The fats showed no difference in melting point, solidifying point, iodine number, saponification value and acetyl number. The calcium and phosphorus contents of the fat-free tissues of the normal and sclerema babies were also about the same. These observations do not lend support to the hypothesis that sclerema neonatorum is caused by a chemical change of the cutaneous tissue.

Causes of Blindness Among Chinese.—From May, 1928, to April, 1929, 336 (10.2 per cent) blind patients were seen among 3,279 admissions to the eye clinic of the Peiping Union Medical College Hospital. In 18.9 per cent of these blind persons the cause of blindness could not be ascertained. The main determinable causes were in the following descending order of frequency: keratomalacia, 34.5 per cent; trachoma, 14 per cent; glaucoma, 8.9 per cent; syphilis, 5 per cent; cataract, 5 per cent; gonorrheal ophthalmia, 5 per cent; injuries, 4.2 per cent; tuberculosis, 2.1 per cent; neoplasms, 0.6 per cent; smallpox, 0.3 per cent. With the exception of keratomalacia and an interchange of place of glaucoma and cataract, the main causes of blindness occupied the same relative position in Ling's series and in Chang's analysis of cases. Keratomalacia was an insignificant cause, 0.52 per cent (in only four eyes) in Ling's 760 blind patients, while it was responsible for 116 of Chang's series of 336 blind, or 34.5 per cent. The cause of this remarkable difference is chiefly the civil war, as a great number of eye patients during the last year were soldiers. On account of the restricted finances of the armies and the difficulty of seeking aid in the early stage of the disease, keratomalacia spread.

Annales de Médecine, Paris

28: 105-199 (July) 1930

Hydric Equilibrium of Organism in Pathogenesis of Edemas. M. Labbé.—p. 105.
*Muscular Uremia. H. Gounelle.—p. 126.
Disturbances in Cardiac Rhythm in Experimental Diphtheria. R. Lutembacher.—p. 153.
Hypertrophy and Dilatation of Right Side of Heart of Pulmonary Origin. I. Hatzieganu.—p. 158.
Variations of Glycemia in Shock Phenomena. S. Neumark.—p. 162.
Gonococcic Allergy. F. Benoist.—p. 174.

Muscular Uremia.—Gounelle describes several cases of muscular uremia that he has observed and mentions a number of cases described by other authors. The disease presents two distinct clinical forms, myoclonic and myotonic, according to the nature of the muscular reactions involved. In both forms one observes the usual symptoms of uremia: torpor, somnolence, coma, gastro-intestinal disturbances, vomiting, diarrhea, and at times constipation, hypothermia, myosis, oliguria and albuminuria. Hypertension is not always present; however, when it does occur it may be regarded as a pathognomonic symptom in connection with the rest of the clinical picture. The myoclonic form is characterized by intermittent clonic contractions in various muscles and muscular groups. The contractions are practically painless and may affect any part of the body, although the four limbs, especially the arms, are most frequently attacked. Hiccups also occur frequently. In the myotonic form the contractions are persistent, involuntary and always painful; in other words, a "cramp." They vary in intensity and duration and may be localized in any group of muscles. Sometimes a meningeal syndrome resembling meningitis appears in which the spasm attacks the spinal region; this can usually be distinguished from meningitis, however, by the fact that in muscular uremia the cerebrospinal fluid is almost always normal. The spasm is sometimes so generalized that it resembles a state of tetanus; even opisthotonos may appear and during it the patient frequently dies. A trustworthy diagnosis may usually be made by observing the specific muscular syndrome in connection with the classic pathognomonic indications of general uremia. It is necessary to distinguish the myoclonic form from the epileptic form. The latter, however, is usually due to hydropigenous nephritis, hypertension or retention of chlorine in the cerebral gray matter and presents different clinical symptoms. The pathogenesis of muscular uremia is not yet fully established. Probably the soundest and best tested theory is that it is caused by azotemia. There is some basis also for the theory of cerebral retention of chlorine. The author suggests that in many ways the condition resembles the results of parathyroid insufficiency.

Archives des Maladies du Cœur, etc., Paris

23: 561-624 (Sept.) 1930

*Anacrotic Pulse. C. Laubry, P. Soulié and A. van Bogaert.—p. 561.
Electrocardiographic Translation of Auricular Preponderance in Mitral Stenosis. I. Chvartzman.—p. 603.

Anacrotic Pulse.—The contradictory views expressed by various authors led Laubry et al. to make a thorough study of the problem of anacrotism of the pulse in order to determine its exact nature and origin. For the experiments they used a pneumatic cuff connected with a manometer and a Pachon-Boulitte oscillometric ampule. The inscription was made either by the optical method or on smoked paper. The manometer made it possible to read the pressure under which the graph was made. After a long series of tests the authors are convinced that true anacrotism of the pulse is due to the exaggeration on the arteriocardiogram of the secondary systolic wave, coincident or not with the decline of the primary wave. This anacrotism, corresponding to that of the heart, is the expression of conflict of an intense and prolonged ventricular effort, projecting its blood wave into a resisting arterial system. The conflict causes an irregularity in the form of a camel's back in the cardiogram and the exaggeration of the second systolic wave of the arteriogram. Since anacrotism is a function of peripheral resistance, myocardial effort and the amount of blood expelled, it is exaggerated when the three influences act together and it disappears when they are weakened, especially when the myocardial element is lacking. The secondary systolic wave surpasses the summit of the primary wave more easily when the latter is low. Anacrotism of the pulse and heart is not a sign of severe myocardial deficiency but is the graphic representation of an abnormal though easily tolerated peripheral condition. One observes a physiologic anacrotism in the arteriograms taken at minimal pressure, an experimental pseudo-anacrotism engendered by a stenosis of the arterial system, and a latent or concealed anacrotism in connection with pure aortic stenosis.

Journal de Chirurgie, Paris

36: 161-352 (Aug.) 1930

Surgical Treatment of Obstetric Paralysis. M. E. Lauwers.—p. 161.
*Transplantation of Patella. P. Moulonguet.—p. 175.
Subcalcaneous Exostosis. F. Ferrari and F. Morand.—p. 180.

Transplantation of Patella.—Moulonguet regards transplantation of the patella as the operation of choice to remedy a loss of muscular substance in the lower part of the femoral quadriceps. If the defect is filled with grafts of muscular tissue, the quadriceps is weakened and adherences and ossification are also likely to result, which prevent bending of the knee. On the other hand, the transplantation of the patella to meet the quadriceps, with reinsertion of the muscle, gives excellent anatomic and functional results. This operation was first performed by Lecène, who used the following method: A prefemoral incision is made in the shape of the letter Z. The large fragment is turned down outside. The diseased portions are removed. The patella is completely freed at each side. Section of the tendon is made at two levels extending across almost the entire width of the tendon, this lengthening it sufficiently. The patella is then raised so that it may be sutured to the lower end of the quadriceps. The edges of the patella are also sutured to the external fibers. The patella is thus completely reinserted and the articulation closed. Within a few months the patient is able to walk with ease and full mobility of the knee.

Lyon Chirurgical

27: 401-536 (July-Aug.) 1930

*Secondary Cancer of Peritoneum. J. Cottalorda and A. Caire.—p. 401.
Influence of Sympathetic Operations on Leukocytosis. J. Iscenko and O. Proscura.—p. 426.
Kümmel-Verneuil Disease. O. Francke.—p. 431.
Total Hysterectomy in Cancer of Neck of Uterus. R. Labry.—p. 445.

Secondary Cancer of Peritoneum.—Cottalorda and Caire describe twelve cases of secondary cancer of the peritoneum that they have studied. Although the disease is practically always fatal and seems to be beyond the resources of surgical treatment, they have found that in most cases an exploratory laparotomy may be made with safety, which sometimes reveals tumors that may be removed. They feel, moreover, that if it were possible to make an earlier diagnosis a method of treatment might be possible. With this in mind, they consider an exact knowledge of the anatomic and clinical characteristics of secondary cancer of the peritoneum well worth while. The condition is the result of a primary growth in the genitalia or the stomach that extends to the various regions of the peritoneum. The three chief symptoms are ascites, tumors and intestinal occlusion. The abdomen is greatly enlarged and filled with a bloody fluid that contains leukocytes of various types, hemolyzed erythrocytes, lymphocytes, and some rare polymorphonuclears, and that renews itself rapidly after puncture. The tumors themselves are made up of masses of grayish white granulations and are in general the size of an orange or a fetal head. They are usually attached to the abdominal wall, which itself has a covering of the same granulations, but are in rare instances found floating in the fluid. They are usually observed in the subumbilical region near the hypogastrium or the iliac fossa but sometimes in the two hypochondria. The occlusion of the small intestine that results is caused sometimes by adhesions or tumoral compression but usually by a neoplastic retractile mesenteritis that draws the small intestine backward and flattens it firmly against the posterior abdominal wall. However, the common clinical manifestations of this intestinal occlusion make accurate diagnosis difficult. The various forms in which the disease appears in the clinic as well as the fact that the symptoms do not become specific until the cancer is well developed are also obstacles that hinder the early diagnosis that is desirable.

Presse Médicale, Paris

38: 1217-1232 (Sept. 10) 1930

*Errors in Application of Insulin Treatment in Diabetes. M. Labbé.—p. 1217.
Pulmonary Silicosis. A. Feil.—p. 1220.
*Hernial Contusions. R. Chabrut.—p. 1223.

Errors in Application of Insulin Treatment in Diabetes.—Although the correct method of insulin treatment has long been established, Labbé feels that there are still many misconceptions of the nature and application of this treatment prevalent among both laymen and physicians. He discusses several of these, as follows: 1. The fallacious belief that insulin in itself can cure diabetes has led physicians to employ this treatment with no attention to diet, in abnormal quantities, or at irregular intervals rather than constantly. This is, of course, useless and even dangerous, since the action of insulin merely reestablishes the alimentary metabolism by permitting the utilization of from 1 to 1.25 Gm. of carbohydrates for each unit of insulin injected. It does not remove the cause of the diabetes but merely controls from day to day the hyperglycemia. 2. The fact that abandoning insulin treatment causes severe and often fatal results has intimidated certain physicians and caused them to avoid the prescription of insulin. It is true, to be sure, that it is dangerous to discontinue the treatment, but the danger is due not to the fact that insulin has been used but to the seriousness of the diabetic condition itself, which would have proved fatal without the use of insulin, whereas the treatment allows the patient to live in apparent health. 3. The reactions of hyperinsulinism or hypoglycemia which often result are alarming to many. The author, however, has never observed any really serious effects, although patients often relapse into a state of coma for a few minutes. Even this may be avoided if injections of insulin are given a quarter of an hour before eating and a quantity of carbohydrates corresponding to the dose of insulin is included in the meal. 4. To avoid the constant injections that are so distasteful to many patients, numerous methods of administering insulin have been introduced. The only effective method, however, is the long established one of subcutaneous injection. Labbé particularly condemns the present propaganda for insulin tablets, many varieties of which are now on the market. Insulin in this form can have little or no effect, and the abandonment of injections for tablets taken by mouth has caused disastrous results in a number of patients.

Hernial Contusions.—Chabrut describes several cases that show what serious results can follow even a slight contusion of a hernia. Whether the contusion is followed by a strangulation (complete or incomplete), a generalized peritonitis or a hemorrhage, the only safe rule to follow is to operate as quickly as possible, even when reduction of the hernia takes place spontaneously. Early operation is especially important when peritonitis is involved; for instance, in ten cases observed, only two patients survived, on both of whom operation was performed within two hours after the contusion.

Revue de Chirurgie, Paris

67: 563-646, 1929

Osteosynthesis of Femoral Diaphysis with Knee Flexed. A. Parcelier and A. Chenut.—p. 563.
*Surgical Treatment of Sigmoiditis. X. Delore.—p. 597.
Functional Examination of Biliary Passages by Roentgen Exploration After Cholecystotomy. L. Bérard and P. Mallet-Guy.—p. 614.

Surgical Treatment of Sigmoiditis.—Delore reports seven cases of sigmoiditis and draws the following conclusions as to the surgical methods that are most efficacious in combating the disease: In acute gangrenous forms, treatment should be limited, in general, to drainage by means of an artificial cecal or colic anus; resection is rarely practicable. When a perisigmoidal abscess is present, one should first incise and drain the abscess; later, especially when diverticulitis is present, a secondary resection is often necessary, which to be harmless should follow certain rules, especially the creation of a preliminary artificial anus. While chronic sigmoiditis may sometimes be cured by a simple medical treatment, colostomy is advisable. When diverticulitis is associated with the chronic sigmoiditis, resection preceded by colostomy is efficacious. When salpingitis is present, by first treating it a simple chronic sigmoiditis may also be cured; if diverticulitis also is present, however, resection is usually necessary, the formation of an artificial anus being valuable as an additional precaution.

Schweizerische medizinische Wochenschrift, Basel

60: 813-836 (Aug. 30) 1930

Guttadiaphot Method of Meyer, Bierast and Schilling. H. C. Frey.—p. 813.
*Significance of Benzene Derivatives of Intestinal Putrefaction in Etiology of Cancer. E. Grandjean.—p. 823.
Treatment of Rhinopharyngitis Chronica Sicca with Secondary Auditory Disturbances. H. Erdmann.—p. 828.
Expulsion of Placenta Before Birth. Barrelet.—p. 828.

Benzene Derivatives of Intestinal Putrefaction in Etiology of Cancer.—Grandjean directs attention to the fact that cancer frequency is greatest among peoples with a comparatively high standard of living and to the fact that more than 63 per cent of cancers affect the digestive organs; this indicates that the diet has an etiologic influence. Among peoples with a lactovegetarian diet, such as the Hindus and many primitive peoples, cancer is much less frequent than in countries where the foods provide large quantities of proteins, especially those of animal origin. The author points out that the benzene derivatives of intestinal putrefaction resulting from diets rich in animal proteins exert a continuous growth stimulation on the healthy cells and gradually the constantly irritated tissues develop into malignant tumors. However, it is not only in the digestive organs, particularly the intestine, that benzene derivatives are formed as the result of protein putrefaction; on the contrary, they develop wherever in suppurative processes disintegration of protein by anaerobic bacteria takes place, for instance in the lungs, in the female genitalia, in abscesses of the teeth, in alveolar pyorrhea and in ulcers. The theory that the benzene derivatives are of significance in the etiology of cancer is also proved by the fact that occupational cancers are most frequent in workers who come in contact with benzene and coal tar products. To reduce the frequency of cancer, especially of the intestinal tract, it is therefore advisable to decrease to a minimum the intake of those proteins that form benzene derivatives; namely, meat, eggs and the plant proteins contained in legumes, such as beans, peas and lentils. The proteins required by the organism should, as much as possible, be supplied in the form of milk and milk products, because these give rise to a bacterial flora that is antagonistic to the bacteria of putrefaction. Regular defecation is likewise significant in the prophylaxis of cancer of the digestive organs.

Archivio Italiano di Chirurgia, Bologna

26: 541-648 (Aug.) 1930

Pleuropulmonary Complications of *Abdominal Diseases: Postoperative* Pulmonary Complications. E. Debenedetti.—p. 541.
*Fat Necrosis of Breast. R. Brancati.—p. 585.
Pathogenesis of Polycystic Kidney. L. Baccarini.—p. 618.

Fat Necrosis of Breast.—Brancati describes fat necrosis of the breast, a disorder consisting in a process of destruction and replacement of the fat tissue—which may be clinically confused with tumors and especially with cancer. He cites the various pathogenic theories, attributing to the influence of a pancreatic secretion or of a lipase contained in the blood changes in the fat due to endocrine disturbances, chiefly of the thyreo-ovarian group or of the reticulo-endothelial system; to this may be added the traumatic factor, which sometimes escapes observation. The author describes the various anatomopathologic stages of the lesion—from the formation of a focus of necrosis associated, when there is a trauma, with hemorrhagic foci, down to the formation of special nodules consisting of fibroblasts, giant cells and epithelioid cells (lipoblasts), which fill up the interior of the fat lobules, gradually dissolving the fat and finally replacing it with fibrous tissue. In the giant cells and in the lipoblasts one can discover, by means of special stains, some drops of fat. The author holds that these elements are derived from the histoid cells of the reticulo-endothelium, with which they are in intimate connection, rather than from an endogenic proliferation of the fat cell. For the differential diagnosis, one must note the respects in which the condition differs from cancer, for which there are few clinical symptoms. The best means is represented by the direct anatomopathologic test with the aid of an exploratory incision. In other diseases, such as tuberculosis of the breast, syphilis, actinomycosis and benign tumors, the opportunities for differentiation are greater. The treatment, provided it is possible to establish a sure diagnosis, should consist in the partial removal of the tumefaction. The author describes three clinical cases that he observed, during the past two years, at the surgical clinic in Rome. By means of macroscopic and microscopic pictures he reproduced the various aspects of the lesion.

Pediatria, Naples

38: 809-864 (Aug. 1) 1930

Statistical, and Clinical Observations on Prematurely Born Infants in Their First Days of Life. G. Milio.—p. 809.
*Modifications of Opsonic Index in Children Convalescent from Measles and Chickenpox. G. A. Piana.—p. 828.

Opsonic Index in Children Convalescent from Measles and Chickenpox.—Piana has made a special study of the opsonic index in children convalescent from measles and chickenpox. He concludes: The opsonic index in children convalescent from measles is diminished toward the typhoid bacillus, normal with reference to *Brucella melitensis* and increased with respect to the streptococcus. The high index toward the streptococcus, in contrast with that toward other micro-organisms, may be associated with unknown causes or etiologic affinities. The opsonic index in children convalescent from chickenpox is notably increased toward all three micro-organisms.

38: *865-920* (Aug. 15) 1930

**Blood Changes in Chickenpox.* N. Carrara.—p. 865.
Congenital Cardiopathies, with Especial Reference to Their Importance in the Field of Scientific Medicine. V. Uguccioni.—p. 881.
Observations on a Number of Cutaneous Tuberculin Tests. P. Gorini.—p. 899.

Blood Changes in Chickenpox.—From his hematologic study of fourteen cases of chickenpox, carried out during the various periods of the disease, Carrara points out the following: in the period of incubation, relative lymphocytosis with neutropenia; in the exanthematic period, leukopenia in 50 per cent of the cases and constant relative lymphocytosis with neutropenia; absence of eosinophils in eight cases and increase of mononuclears in ten cases; almost constant observation of plasma cells (from 1 to 4 per cent); occasional observation of myelocytes and neutrophil metamyelocytes; in convalescence, reactive leukocytosis, which, often however, begins before the disappearance of the exanthem. During the various periods, the erythrocytes appear to be slightly or not at all modified. The author thinks that these blood manifestations may constitute a valuable aid in the differential diagnosis, especially in clinically doubtful cases.

Policlinico, Rome

37: 1165-1200 (Aug. 11) 1930. Practical Section

Surgical Treatment of Acute Hematogenic Osteomyelitis. A. Avoni.—p. 1165.
Nonsurgical Treatment for Ingrowing Nails. G. Nisi.—p. 1168.
*Infantile Hemiplegia Due to Malaria. B. de Luca.—p. 1171.

Infantile Hemiplegia Due to Malaria.—De Luca describes two cases of infantile hemiplegia due to malaria which resulted in complete recovery. In one case there was subtertian fever, which with relative frequency gives rise to nervous syndromes, while in the second case the small type of plasmodium of tertian fever was encountered. The author thinks this is the first case reported in the literature.

37: 1201-1236 (Aug. 18) 1930. Practical Section

Galactotherapy in Ophthalmology. P. Porru.—p. 1201.
*Periarterial Sympathectomy in Treatment of Pains Due to Cerebral Hemiplegia. G. Bombi.—p. 1204.

Periarterial Sympathectomy for Pain Due to Cerebral Hemiplegia.—Bombi reports having secured good results from periarterial sympathectomy in two cases of cerebral hemiplegia associated with persistent pains on the hemiplegic side. He calls attention to the contrast between the facts observed and the theoretical conceptions universally accepted, in regard to the central origin of these pain syndromes, and emphasizes the practical importance of the subject.

Riforma Medica, Naples

46: 1225-1264 (Aug. 4) 1930

Primary Interlobar Empyema. L. de Beco.—p. 1227.
*Infective Hepatitis and Icterus Due to Spirochetes. L. Villa.—p. 1234.
Inflammatory Nature of Spinal Fluid in Certain Forms of Nonfamilial Friedreich's Disease. G. Vercelli.—p. 1238.

Infective Hepatitis and Icterus Due to Spirochetes.—In addition to three observations on infective icterus due to spirochetes, with a fatal course, previously published, Villa reports here four further cases, observed likewise in the province of Pavia, having clinical symptoms somewhat similar to the symptoms of the preceding cases. The bacteriologic search for the pathogenic spirochetes was not always positive; nevertheless the clinical picture points in the majority of cases to infective icterus. All forms of treatment proved useless in the cases with a hyperacute course; but in acute and subacute cases the author found arsphenamine in small but frequent doses useful.

Rivista di Clinica Pediatrica, Florence

28: 553-648 (July) 1930. Partial Index

*Absorption of Calcium and Phosphorus in Experimental Rickets. F. Peola and G. Guassardo.—p. 583.

Absorption of Calcium and Phosphorus in Experimental Rickets.—Peola and Guassardo performed animal experiments in which they used a loop of intestine, isolated by means of a double Vella fistula, to determine the absorption of calcium and phosphorus and its variations during the development and evolution of rickets. They also determined in the same animals the quantitative variations in the calcium and phosphorus contents of the blood serum after intestinal absorption under both conditions (normal and in rickets). The experiments were made first when the animals were in normal condition and then during the development and evolution of experimental rickets produced by Mellanby's diet. The moment when the phosphorus began to diminish was considered as the first symptom of rickets. This symptom was promptly followed by the appearance of clinical symptoms of rickets as proved by roentgen examination. The authors give the technic of their experiments and present the results in tabular form. It is manifest that the absorption of calcium does not undergo any variation during the entire period of rickets. The authors say that this fact confirms the opinion that calcemia is normal in rickets, except when the latter is complicated with tetany. The absorption of phosphorus, on the contrary, undergoes marked modifications, especially in the advanced period of rickets. Under normal conditions the absorption of calcium is from 50 to 60 per cent of the amount taken in, and that of phosphorus from 70 to 80 per cent. After experimental rickets has been provoked, the absorption of calcium remains normal while that of phosphorus falls to 60 per cent. However, the disturbances in the absorption of phosphorus appear retarded in rickets. Hence they should be considered from the point of view of the pathogenesis of rickets, as secondary manifestations.

Prensa Médica Argentina, Buenos Aires

17: 197-264 (July 10) 1930

Present Status of Problems of Infection. M. R. Castex.—p. 197.
Supracondylar Fracture of Femur with Traumatic Detachment of Inferior Ephiphysis of Tibia: Two Cases. N. Tagliavacche and V. di Franco.—p. 249.
*Helminthologic Study of One Hundred Appendixes Removed Surgically. J. Bacigalupo.—p. 252.
Sulpharsphenamine in Treatment of Erysipelas in Infants: Case. J. B. Germano.—p. 256.

Helminthologic Study of One Hundred Appendixes.—Continuing previous studies that he made on the parasitology of normal appendixes in children, Bacigalupo now presents the results of an helminthologic study of 100 pathologic appendixes which had been removed by surgery from adults. Parasites were found in twenty-five (in twenty-four, *Enterobius vermicularis* and in one, *Trichuris trichiura*). In the case of *T. trichiura*, the parasite existed alone. In the other cases the number of parasites varied from one to seventeen in each appendix. In eighteen appendixes there were only female parasites; in five appendixes there were males and females in association, and in one appendix there was only one male. The author describes the technic he used to isolate the parasites. He reaches the following conclusions: The incidence of appendicular helminthiasis in Argentina in normal appendixes of children less than 13 years is from 27 to 48 per cent, and that of pathologic appendixes removed surgically from adults is about 25 per cent.

17: 437-484 (Aug. 20) 1930

Perivisceritis of Upper Right Portion of Abdomen: Clinical and Roentgenographic Diagnosis. C. B. Udaondo.—p. 437.
*Severe Hepatitis with Abscesses Following Appendicitis. N. Tagliavacche and R. Brouca.—p. 453.
Roentgen Examination of Peptic Ulcer of Jejunum. P. M. Schlanger and E. W. de Schlanger.—p. 457.
*Appendicular Spirochetes. S. Mazza.—p. 464.
Diverticulitis of Sigmoid Flexure. L. Puccio.—p. 468. C'cn.

Severe Hepatitis with Abscesses Following Appendicitis.—Tagliavacche and Brouca describe a case in which after an appendectomy the patient showed all the usual symptoms of severe hepatitis with abscesses. Yet he was cured by a simple treatment consisting of epinephrine, hepatic refrigeration, vaccination, daily enemas, and a diet of cereals, milk and cooked fruit. The authors believe that surgical treatment of hepatitis with multiple metastatic abscesses accompanying appendicitis is usually of value only when the operation is performed simultaneously with the appendectomy and by a surgeon especially skilful in determining the course of action to take in the face of unexpected complications. They also believe that more cures than is commonly admitted are spontaneous rather than the result of surgical intervention. Their policy, therefore, is to employ surgical intervention usually only as an early prophylactic treatment, when the hepatic complications are observed at the time of the appendectomy. Appendicitis likewise results at times in a single abscess of the liver which is much less dangerous and more susceptible to spontaneous cure than are multiple abscesses. This fact the authors consider an additional reason for believing that the hepatic complications with abscesses following appendicitis, still generally believed to be fatal in the majority of cases, are often cured spontaneously if no surgical intervention is practiced.

Appendicular Spirochetes.—Mazza examined the contents of 394 appendixes and in thirty-eight found spirochetes resembling those of the type *Spirochaeta eugyrata*. Most of the patients in whom the infection was observed had shown no previous indications of diarrhea or dysentery, nor had these spirochetes appeared in the feces. Microscopic examination of the thirty-eight appendixes revealed intrafollicular hemorrhages, intense eosinophilia of the submucosa, and in some cases chronic fibrous lesions and mucosal atrophy resulting from the coprostasis. The infection is doubtless due to some outside source, probably drinking water. Because of the lack of marked clinical or anatomicopathologic phenomena, there is no authority to speak of "spirochetal appendicitis" but merely of "appendicular spirochetes." In case the removal of the appendix does not remove all traces of the infection, arsenical treatment may be used. Because of the failure of attempts to cultivate these spirochetes it is impossible to say conclusively that they actually belong to the type eugyrata, although their morphology indicates this relationship.

Semana Médica, Buenos Aires

37: 229-304 (July 24) 1930. Partial Index

Periodic Acetonemic Vomiting and Acidosis: Treatment. J. P. Garrahan.—p. 233.
Ostearthritic Tuberculosis of Knee: Robertson Lavalle's Operation. A. E. Despontin.—p. 248.
Acute Transverse Myelitis in Child. J. M. Macera and J. Pereyra Kafer.—p. 253.
*Biliary Peritonitis Complicating Choledocholithiasis. R. L. Masciottra and N. Ambrosino.—p. 256.
Roentgen Diagnosis of Anencephalia During Pregnancy: Case. A. J. Gutroy.—p. 259.

Biliary Peritonitis Complicating Choledocholithiasis.—Masciottra and Ambrosino state that their fatal case of biliary peritonitis complicating a choledocholithiasis in which operation had not been performed is the first published in the literature. Their patient, aged 40, had the first attack four years before the last one. The next attack appeared two years later. In the present (third) attack the patient presented a grave syndrome with fever, intense jaundice, symptoms denoting obstruction of the common bile duct and insufficiency of the liver, and abundant hemorrhages from the uterus and the nose. Duodenal tubage and lavage of the stomach caused the expulsion of a large amount of black fluid. Medical treatment failed. At necropsy there was found a diffuse biliary peritonitis. The gallbladder and common bile duct were enlarged but not ruptured and they contained stones. One of the stones embedded in the common bile duct had caused its obstruction.

37: 465-544 (Aug. 14) 1930

Diagnosis and Treatment of Pernicious Anemia. D. Speroni.—p. 465.
*Primary Sarcoma of Lung in Child. M. Acuña, P. Winocur and G. P. Orosco.—p. 474.
Dystocia Due to Absence of Lower Uterine Segment as Late Results of Radium Treatment: Case. D. A. Rojas.—p. 481.
Adenocarcinoma of Pylorus with Metastasis to Ovaries and Liver. O. F. Mazzini and D. Brachetto-Brian.—p. 486.
Reconstruction of Urethra in Woman Two Years After Cystotomy: Case. A. J. Pavlovsky.—p. 494.
*Acute Orchitis After Vaccination in Child. G. A. Schiavone.—p. 515.
Treatment of Varicose Veins by Subcutaneous Injections of Acetylcholine: Eighteen Cases. I. Dainow.—p. 524.
Complete Fracture of Horizontal Ramus of Inferior Maxilla. V. Pardo de Tavera.—p. 539.

Primary Sarcoma of Lung in Child.—Acuña et al. report the case of a child, aged 8, observed during life, in which at necropsy a primary sarcoma of the left lung with invasion of the pulmonary vein, displacement of the heart, and metastasis to the liver, were found. The authors review the literature and present statistics on primary and secondary neoplasms of the lung observed during a period of ten years. Neoplasms of the lung are rare in persons aged less than 20. Sarcoma of the lung in children has an insidious onset with anorexia, cough and fever, without modifications in the nutrition of the patient. Later on the cough becomes worse and dyspnea and cyanosis appear. The physical signs, which at first are similar to those of pleural effusion, soon become more marked. Displacement of the adjoining organs takes place at the same time that thoracic deformity occurs. Roentgen examination shows a dark shadow in the lung. When roentgen pictures are taken at intervals of a few days, the rapid progress of the tumor, invading the normal fields, is manifested. Pleural puncture yields bright red blood. The last mentioned sign is characteristic of malignant neoplasm of the lung and in the authors' case it was present. Some of the symptoms found in sarcoma of the lung in adults (such as the expectoration of prune juice sputum, pain in the thorax and the appearance of neoplastic cells in the sputum) are not observed in sarcoma in children.

Orchitis After Vaccination in Child.—Schiavone says that orchitis is a frequent complication of certain infections. A type of orchitis similar to orchitis variolosa has been observed after vaccination. There are opinions (though conflicting) maintaining a relation between the epidermotropic virus of smallpox and of vaccination, on which basis it could be accepted that orchitis and orchiepididymitis might be complications of vaccination just as they are complications of smallpox. The author reports a case of postvaccinal orchitis (probably associated with epididymitis). The presence of an infection or the association of any other disease was excluded in his case. Orchitis developed six days after vaccination as a vaccinal complication. The author considers that there is a relationship between the development of orchitis in his case and the presence of complications of a similar nature in smallpox; that is, a relationship between postvaccinal orchitis and orchitis variolosa.

Archiv für klinische Chirurgie, Berlin

161: 1-334 (Aug. 26) 1930

Studies on Transplantation of Tumors of Man into Mice. H. Hellner.—p. 1.
Roentgenologic Study of Callus and Bone Growth in Healed Fractures with Deformity. R. Hinz.—p. 49.
*Air Embolism, Especially in Urologic System. W. Rettig.—p. 72.
*Treatment of Suppurations of Fingers and Hand. S. Sokolov.—p. 89.
*Healing of Wounds Under Adhesive Plaster Bandage. E. Dabasi.—p. 117.
Colitis: Differential Diagnosis. G. Garry and A. Druckmann.—p. 128.
Mechanics and Tone in Abdominal Cavity. E. Pflomm.—p. 139.
Regeneration of Elastic Cartilage. M. N. Zajewloschin and J. C. Koch.—p. 157.
Chemical Reactions Taking Place in Ether, and Anesthesia. H. Offergeld.—p. 172.
Traumatic Effusions into Joints. E. Risak and W. Winkler.—p. 190.
Myositis Ossificans of Elbow Joint. G. Wolfsohn.—p. 215.
*Calcium Content of Blood in Chronic Rheumatic Arthritis. M. Bastos and L. Mazo.—p. 222.
Recurrence of Gastric Ulcer After Resection of Stomach. F. Jaeger.—p. 233.
*End-Results of Palliative Operations for Perforated Gastric and Duodenal Ulcers. K. Neller.—p. 244.
*Experiences with Nitrous Oxide-Oxygen Anesthesia. D. von Klimkó.—p. 259.
*Effect of Acid and Alkaline Foods on Regeneration of Bone. Mondry and H. Boeminghaus.—p. 273.
Indications for Operation in Osteochondritis Dissecans. H. von Staa.—p. 281.
*Treatment of Postoperative Retention of Urine. E. Rotthaus.—p. 309.
Should Lane's Method of Treatment of Fractures by Means of Bone Plates be Discarded? M. Kirschner.—p. 319.

Air Embolism.—Rettig is convinced that the dread of air embolism is justified by the deaths that have resulted from filling the urinary bladder, the pelvis, the bed of the kidney, the chest and the abdomen with air. The use of oxygen has not lessened this danger. The author feels that the incidence of air embolism has been overstated, but, nevertheless, the fact that it does occur should never be forgotten. Dangerous diagnostic procedures should therefore be employed only when the indications are incontrovertible—when all other aids have failed, and the condition of the patient absolutely calls for making the diagnosis. The treatment is entirely prophylactic: when it is evident that air embolism has occurred, the injection of air should be discontinued, the patient should lie down with the hips slightly elevated, oxygen should be administered and the heart action should be supported, if necessary, with resort to the injection of epinephrine and even heart massage and artificial respiration with the pulmotor. Surgical intervention is useless. Rettig calls attention to the dangers of making an intracardiac injection; namely, the possibility of injuring one of the coronary arteries or its branches.

Treatment of Suppurations of Hand and Fingers.—Sokolov advises early operation in all these cases, under light general anesthesia in an absolutely bloodless field. The tourniquet should be applied to the upper arm. He never uses sharp hooks, nor does he resort to exarticulation. In cases of suppurative tenovaginitis, early intervention and subsequent immobilization (rest) of the extremity are of vital importance to complete recovery of function. Bandages and dressings must be applied with extreme care so as not to cause pain, and active motion is essential to the prevention of adhesions.

Wound Healing Under Adhesive Plaster Bandage.—Experience has convinced Dabasi that both the number and the virulence of bacteria are lessened under an adhesive plaster bandage. In the course of the treatment the underlying tissues reach a state of alkalosis in most cases. In 100 cases treated in this wise there was not a single complication nor a spread of the infection. Wound healing progressed very favorably. In fact, the author stresses the importance of moisture in favoring wound healing and points out that even pus is of value in that respect, provided it does not contain harmful elements, especially bacteria. Here the adhesive plaster bandage is of value because of its effect on the bacteria and without hindering wound secretion, which is needed to promote healing. Furthermore, it is cheap, is applied easily, is taken off easily, and never causes the patient any pain. It should be changed every ten or twelve days, at the latest; he prefers to do this every four or five days. The duration of the treatment varied from fourteen to thirty days, instead of months or even years, and the scar is less disfiguring than with the treatment usually employed. The method should not be used in cases of progressing suppurations; that is, when there is an evident tendency to spread, which calls for more radical measures.

Calcium Content of Blood in Chronic Rheumatic Arthritis.—A personal study of thirty normal, healthy students with reference to the calcium content of the blood has convinced Bastos and Mazo that the normal value is much more stable than has hitherto been supposed to be the case. This value lies between 10 and 11 mg. per hundred cubic centimeters; that is, the fluctuation is not greater than 1 mg. per hundred cubic centimeters. An examination of thirty-two cases of rheumatic disease showed lower and higher values and a greater fluctuation in the calcium content. The figures were: low, 9.99 mg.; high, 13.76 mg.; fluctuation, 3.77 mg. per hundred cubic centimeters. The low figure was obtained in only one case; in thirteen cases average values were obtained, and in eighteen cases there was a distinct hypercalcemia. The authors are of the opinion that these higher calcium values are not the result of storage of calcium in the blood but are indicative of changes in the bones which are a part of the clinical picture in some of these cases. In other words, there is a mobilization of organic lime in exostoses, bone bridges and ossifications. Other, uninvolved parts of bone are correspondingly decalcified. In cases of arthritis without bone lesions, the calcium values are normal. In eight cases of tuberculous ostearthritis the calcium values were well within normal limits; in two cases of bone cysts, they were markedly high (13 mg.); hence, it is evident that increase in calcium is not the cause but the result of these disorders. One bone area demands calcium for ossification; therefore it is withdrawn from some other area to supply this demand.

End-Results of Operations for Perforated Peptic Ulcers.—Neller has had opportunity to reexamine twenty-one patients on whom he had operated for a perforated peptic ulcer. He has also reviewed the literature for similar cases reported by other operators. The total number of cases reviewed was 579. Of these 374 patients, 64.4 per cent, were free from any discomfort. As to the effect of the type of operation on the result: 63 per cent of those on whom a gastro-enterostomy was performed, in addition to closing the perforation by suture, made no complaint, and 61 per cent of those without gastro-enterostomy were symptom-free. Neller feels that resection of the ulcer is the best procedure so far as permanent results are concerned, but because of the severity of this operation it is indicated only rarely—when it can be performed easily, when the condition of the patient is good, and if performed soon after the perforation has taken place. As a rule, or rather as a routine treatment, closing the perforation and performing a posterior gastro-enterostomy, gives the best results.

Results of Nitrous Oxide-Oxygen Anesthesia.—Von Klimkó prefers this anesthesia to any other. He has employed it in more than 300 cases, including laparotomies, done for various reasons, even a resection of the stomach, amputation of an extremity, herniotomy and cholecystectomy. He says that it has many advantages over general anesthesia: it is given easily; the patient does not mind taking it; he wakens quickly afterward and has fewer postanesthetic discomforts; it has no bad effects on the air passages or viscera in general. Postanesthetic bronchitis and pneumonia are exceedingly uncommon. However, the anesthesia is not sufficiently deep for laparotomies and it is more expensive than other means of anesthesia.

Effect of Reaction of Diet on Bone Regeneration.—Young animals from the same litter were used by Mondry and Boeminghaus to study the effect of distinctly acid and alkaline foods on the course of bone regeneration and growth. Note of growth was made by means of roentgenograms taken at eight day intervals. There was not much difference in result, but sufficient to make it evident that an acid diet does affect bone growth favorably, and that it may be well to bear this in mind in the treatment of fracture cases. Animals fed oats showed far better bone growth than animals fed greens. A clinical application of these observations can be made.

Treatment of Postoperative Retention of Urine.—In the opinion of Rotthaus, the intravenous injection of 0.01 Gm. of pilocarpine and 0.3 mg. of atropine is the best treatment for this condition. It is harmless, simple and effective. It is preferable to using the catheter.

Beiträge zur klinischen Chirurgie, Berlin

150: 1-170 (July 26) 1930

- *Symptoms of Acute Deep-Seated Ulcer of Duodenum. V. Hoffmann.—p. 7.
- *Gummous Mastitis. H. Akaiwa.—p. 18.
- *Symptoms and Treatment of Cancer of Breast. W. Himmelmann and W. Lehmann.—p. 31.
- *Excision of Gastric Ulcer. V. Hoffmann.—p. 59.
- Dangers of Operations on Bile Passages: Their Causes and Treatment, with Especial Reference to Postoperative Affections of Liver. F. Bernhard.—p. 82.
- Results of Operation for Osteochondritis Dissecans. K. Radicke.—p. 121.
- *Primary Hemangioma of Spleen of Unusual Size. F. Schwarz.—p. 130.
- Symptomatology of Osteopsathyrosis Combined with Blue Sclera and Impaired Hearing. K. Königsfest.—p. 135.
- Some Electric and Thermic Processes in Diathermocoagulation. O. Schürch and M. J. Purtschert.—p. 161.

Symptoms of Duodenal Ulcer.—Hoffmann remarks that acute ulcer of the stomach and duodenum often manifests itself with a variable symptomatology. Deep seated ulcers initiate the clinical picture with most severe pain in the upper part of the abdomen—such as occurs previous to the perforation of an ulcer—but disappears entirely in the course of a few hours. Less deep seated ulcers give indefinite symptoms; often only pressure pain on deep palpation over the site of the ulcer. In other words, the acute picture is absent. In the diagnosis of an acute duodenal ulcer, Hoffmann relies on the presence of fever and glycosuria, both of short duration, and motor disturbances in the stomach. He regards these symptoms as being almost pathognomonic.

Syphilis of Mammary Gland.—Akaiwa says that the female breast may be the seat of any of the clinical manifestations of syphilis. Gummous mastitis occurs either as a circumscribed or as a diffuse lesion. In his case, the gumma was detected eleven years after the occurrence of the primary infection. The macroscopic and microscopic observations are characteristic, although often a differential diagnosis is rendered difficult by resemblance of the tumor to other types of tumor. The author extirpated the tumor in his case and followed this removal with active antisyphilitic treatment. A complete cure and restitution of the patient's health was effected.

Treatment of Cancer of Breast.—Himmelmann and Lehmann report 271 cases of breast cancer (234 new cases; 37 seen because of a recurrence or a metastasis); 11.9 per cent of these cases were combined with struma. Some of the patients were subjected to radical operation alone; others to radical operation, plus postoperative irradiation with the roentgen ray. The results of the former method were better than those of the latter. The prognosis of tumors situated in the sternal half of the breast was worse than in the case of tumors situated laterally. The authors do not favor postoperative irradiation.

Excision of Gastric Ulcer.—An experience with ten cases leads Hoffmann to conclude that excision of a gastric ulcer is the best method of treatment. It is preferable to gastro-enterostomy.

Primary Hemangioma of Spleen.—The spleen in Schwarz's case weighed 3,500 Gm. It consisted almost entirely of a tumor which measured 24 by 18 by 10.5 cm. It was a typical hemangioma. The patient, a woman, aged 35, made a complete and rapid recovery, leaving the hospital three weeks after the operation.

Deutsche Zeitschrift für Chirurgie, Leipzig

226: *309-430 (Aug.) 1930*

*Etiology of Appendicitis. Heile.—p. 309.

Postoperative Alkalosis: The Acid-Base Equilibrium in Ileus. J. Baumann.—p. 335.

*Pathogenesis and Treatment of Gastro-Intestinal Form of Lymphogranulomatosis. L. Sussig.—p. 344.

*Clinical and Experimental Study of Rapid Evacuation of Bile from Liver by Means of Drainage. F. Mandl and E. Rissak.—p. 358

*Blood Sugar Curves Caused by Peroral Administration of Dextrose in Cases of Inflammation of Gallbladder and Bile Passages. H. Eitel. —p. 368.

Reopening the Knee Joint After Operations for Injury of Semilunar Cartilages. F. Mandl.—p. 376.

Diagnosis of Localized Osteitis Fibrosa. F Mandl.—p. 391.

Heredity of Multiple Cartilaginous Exostoses. W. Birkenfeld.—p. 397.

Pseudarthrosis Resulting from Fracture of Internal Malleolus H. Lützeler.—p. 404.

Flatfoot Caused by Congenital Deformity of Talus and Calcaneus. E. Siegmund.—p. 412.

Arachnodactylia. E. Schrader.—p. 423.

Constructing a Thumb from First Metacarpal in a Case of Absence of All Fingers. R. Kraft.—p. 426.

Etiology of Appendicitis.—Heile is of the opinion that during digestion an increased amount of fluid finds its way into the lumen of the appendix, either directly from the intestinal contents or as the result of a reflex action of the sympatheticus. This fluid becomes strongly alkaline and has a strong tryptic action. If for any reason this fluid cannot make its way back into the cecum, it exhibits an irritating effect on the mucosa of the appendix wall. In the course of time the mucous glands in the wall of the appendix become necrotic. This effect is hastened by increase in the enzyme content of the contained fluid; its mixture with the normal bacterial content of the appendix; adhesions, torsion of the appendix; development of fecal stones, and increase in pressure within the lumen. Prophylactic treatment consists in avoiding overfeeding or overeating, especially of albuminous foods, and in good evacuation of the intestines.

Treatment of Gastro-Intestinal Lymphogranulomatosis.—Sussig reports a case of gastric and two of intestinal lymphogranulomatosis in which the pathologic changes were limited to a part of the gastro-intestinal tract and the regional lymph nodes. A tuberculous basis for this condition was absolutely ruled out; in one case a diphtheroid bacillus gave rise to many important questions. Therapeutically, the author is of the opinion that radical extirpation of the affected tissues is indicated with medical and roentgen treatment after the operation.

Draining the Liver and Bile Passages.—Mandl and Rissak have determined experimentally that it is not possible to drain the deeper lying bile passages in the liver by any type of drain; in fact, such a drain hindered the outflow of bile. Therefore, the operation of deep hepatostomy is indicated but seldom, only in most urgent cases. On the other hand, superficial drainage should always be employed in any operation on the bile passages when these show evidence of being dilated. Some clinical experiences cited support these experimental observations.

Blood Sugar Curves in Inflammations of Gallbladder.—Eitel has found that in cases of inflammation of the gallbladder the peroral administration of dextrose is always followed by a definite increase in the blood sugar; in fact, three distinct curves were recorded, each curve being typical of a single pathologic condition. Disturbed liver function is regarded as being the primary cause for these observations. It is not possible to detect disturbances of pancreatic function. With a return of hepatic function, dextrose is eliminated from the blood in two or three hours. The author feels that, in cases of chronic inflammations of the gallbladder which cannot be detected clinically, the sugar tolerance test may prove to have diagnostic value.

Wiener klinische Wochenschrift, Vienna

43: 1077-1104 (Aug. 28) 1930

*Ustilaginism, an Alimentary Disturbance in Children. E. Mayerhofer. —p. 1077.

Treatment of Pulmonary Suppurations by Means of Operative Pneumothorax with Drainage of Pleural Cavity. W. Goldschmidt.—p. 1079.

Therapeutic Experiments with Gonococcus Vaccine. O. Rieger.—p. 1082.

Is the So-Called False Udder-Pox of Cattle Transmittable to Human Beings? P. Esau.—p. 1083.

Clinical Value of Determination of Diastolic Pressure. S. Sterling-Okuniewski.—p. 1084.

Normal Extension of Krönig's Field. A. Grgurina.—p. 1087.

Measures to Facilitate Tuberculin Injections. A. Schimak.—p. 1088.

Surgical Treatment of Tumors of Colon and of Rectum. J. Doberer.—p. 1089.

Methods for Demonstration of Albumoses in Urine. F. Erben.—p. 1091.

Diabetes Mellitus: Various Forms and Treatment. W. Falta.—p. 1092.

Hemorrhages During Period of After-Birth. H. Heidler.—p. 1092.

Ustilaginism, an Alimentary Disturbance in Children.—Mayerhofer observed two children with the typical symptoms of ergotism. In one case he noted convulsions and gangrene, in the other convulsions with delirium. The etiology of these conditions was at first not clear because the flour and bread used in the household did not contain ergot of rye. Moreover, both children had been fed almost exclusively with products of maize. Tests of the maize flour revealed a high content of *Ustilago maydis*, the smut of maize. The fact that *Ustilago maydis* contains substances that have the same pharmacologic action as ergot of rye indicated that the disease of the two children was caused by *Ustilago maydis*. The author designates the disorder as ustilaginism maydis. He gives a detailed description of the symptomatology and further discusses the diagnosis and the differential diagnosis. He says that most of the symptoms, with the exception of the cardiac disorders, namely, hypertension and tachycardia, disappear, after the food containing the *Ustilago maydis* is eliminated from the diet. However, the patients usually retain a hypersusceptibility to this substance. If food containing *Ustilago maydis* is not avoided, the disturbance becomes more severe, necroses develop, and the outcome might be fatal. Exposure to the hot rays of the sun may cause acute exacerbation of the ustilaginism. The administration of papaverine relieves the prickling sensation and decreases the high blood pressure. In order to prevent ustilaginism the author recommends that, in countries where maize is eaten in large quantities, the authorities should see to it that the maize used for seeding is free from *Ustilago maydis*.

Zeitschrift für Urologie, Leipzig

24: 641-720, 1930

Diverticulum of Ureter. R. Chwalla.—p. 641.

*Urethra: Suppository Anesthesia. A. Fryszmann.—p. 646.

Gonococcal Antigen Determinations in Urine: Diagnostic Value. E. M. Sienkiewicz.—p. 647.

Irrigation of Bladder: Apparatus for Providing Stream of Water of Constant Temperature. Pflaumer.—p. 659.

Ureteral Stenosis: Rare Causes. Warner.—p. 660.

*Malignant Tumors of Bladder: Treatment. J. J. Stutzin.—p. 662.

*Chemocoagulation of Bladder Tumors. E. Joseph.—p. 664.

Electrocoagulation of Small Vesicovaginal Fistulas. J. Bitschai.—p. 669.

*Periurethral Urinary Phlegmon. J. J. Stutzin.—p. 672.

Conservative Operation in Large Kidney Stone. Warner.—p. 674.

Passage of Renal Calculi Through Lumbar Fistula. W. Israel.—p. 675.

Ureterovaginal Fistula Caused by Suture of Tear of Cervix. W. Israel. —p. 678.

Angioma of Anterior Urethra. W. Israel.—p. 679.

Urethra: Suppository Anesthesia.—When a quantity of cocaine solution sufficient to anesthetize the urethra is introduced into it, tears of the mucosa are produced and the cocaine enters the systemic circulation and causes symptoms of intoxication. In at least one case reported in the literature the cocaine intoxication produced in this manner caused the death of the patient. Fryszmann therefore anesthetizes the urethra by means of oil of theobroma suppositories 6 cm. long and 4 mm. in diameter containing 0.3 Gm. of solid procaine hydrochloride, which is equivalent to 15 cc. of a 2 per cent procaine hydrochloride solution. Just before it is used, the suppository is placed for a moment in warm water (or a warm solution of mercuric oxycyanide); it is then introduced at once into the urethra and massaged in the direction of the posterior urethra. In about twenty minutes the anesthesia reaches its maximum depth and the introduction of instruments is completely painless. This method of anesthesia, which the author has used in a large number of cases, has the following advantages: 1. The mucosa of the urethra is not stretched and torn and procaine hydrochloride solution does not enter the blood stream. 2. With it one avoids the annoying and occasionally harmful compression of the glans penis while waiting for the solution of procaine hydrochloride to act. 3. The melted oil of theobroma facilities the introduction of instruments.

Treatment of Malignant Tumors of Bladder.—Stutzin believes that the thermocautery deserves greater use in the treatment of malignant tumors of the bladder. He reports the case of a man, aged 54, who had had hematuria for two months. Illumination of the bladder was almost impossible because of the rapid collection of blood in it. A pale blue fluid was therefore injected into the bladder and it was then possible to distinguish a broad-based, villous tumor that occupied the entire space between the orifices of the ureters and the neck of the bladder. The profuse arterial hemorrhage continued despite the use of various chemotherapeutic substances and an extensive coagulation of the tumor. The condition of the patient became grave. A suprapubic cystotomy was therefore performed; the tumor was destroyed completely with the thermocautery and its base was coagulated. The hemorrhage stopped immediately. The condition of the patient improved markedly and he gained in weight. On the basis of the results he obtained in this case the author recommends for the treatment of malignant tumors of the bladder a combination of cauterization, which acts rapidly but superficially, and electrocoagulation, which acts more slowly but more deeply.

Chemocoagulation of Bladder Tumors.—According to Joseph the great advantage of coagulation of bladder tumors by means of concentrated trichloracetic acid is that it acts much more rapidly than thermocoagulation. Another advantage of this form of treatment is that parts of the tumor that are not coagulated frequently undergo spontaneous retrogression; this does not occur following thermocoagulation. For chemocoagulation only a one-way ureteral cystoscope is required. The crystals of trichloracetic acid are heated without the addition of water and dissolve in their own water of crystallization. In this manner a clear liquid is produced that recrystallizes in the cold; to prevent this, a drop of glycerin is added for each cubic centimeter of trichloracetic acid. The ureteral catheter through which the acid is applied to the surface of the tumor is shortened considerably so that the acid does not crystallize out and occlude it. The tip of the catheter is cut off obliquely in such a manner that the opening points anteriorly. Since the acid in its concentrated form is much heavier than the bladder contents, the catheter is held closely over the tumor. At first the water in the catheter and bubbles of air escape and then drops of trichloracetic acid appear, drop down on the tumor, and in a few seconds (much more rapidly than with thermocoagulation) cause a large part of the tumor to become necrotic. Even hemorrhages are frequently arrested by application of the acid. Emphasis is laid on the fact that not more than one cubic centimeter of the acid should be used because of the danger of a too extensive necrosis of the tumor and of an acid intoxication of the patient.

Periurethral Urinary Phlegmon Following Operation.—Stutzin reports a case of periurethral urinary phlegmon in a man who had been treated for stricture. Several incisions were made in the greatly swollen genitalia and because of an impermeable stricture a cystostomy was performed. The condition of the patient improved but three days later he complained of pain in the neck. After a few days there developed an enormous swelling involving the right cheek, the right half of the neck, and the premaxillary and submaxillary spaces. Because of marked edema of the glottis with dysphagia and dyspnea, it was necessary to operate at once to save the life of the patient. The subfascial spaces of the neck were opened by means of a long incision and were found to contain a cloudy fluid but no pus. The operation was followed almost immediately by a disappearance of the edema of the glottis, but two weeks elapsed before the tissue included in the phlegmon became necrotic and was evacuated. In a review of the literature the author was unable to find the report of another instance of the concurrence of a urinary and a cervical phlegmon.

Zentralblatt für Chirurgie, Leipzig

57: 2225-2288 (Sept. 6) 1930

- *Report of Successful Results in Cases of Unilateral Pulmonary Tuberculosis of Attempt to Enhance Value of Phrenicus Exeresis with Resection of Scalenus Muscles. H. Els.—p. 2228.
- New Bone Holding Forceps Used in Surgical Treatment of Fractures of Shafts of Bones. P. Neuhöfer.—p. 2233.
- Postoperative Lung Complications. F. Mandl.—p. 2236.
- *Successful Operation in Case of Hirschsprung's Disease. E. Ege.—p. 2238.
- Benign Tumors of Gallbladder. A. Pytel.—p. 2240.

Phrenicus Exeresis with Resection of Scalenus Muscles.—Els is convinced that a combination of these two procedures is vastly superior in therapeutic effect to exeresis alone, if the tuberculosis is limited to the upper portions of one lung, when pneumothorax is not indicated or not possible because of adhesions and it is desired to effect a shrinking of the lung; when complete collapse of the lung after pneumothorax is prevented by adhesions in the upper zone, thus making it impossible for the walls of a cavity in that part of the lung to come in contact; in certain tuberculous processes which do not exhibit any collapse tendency, and when thoracoplasty is performed as a further means to ensure complete rest of the affected lung.

Successful Operation in Case of Megacolon.—A woman, aged 22, ever since birth had suffered from severe constipation. Sometimes she would not have a bowel movement for three weeks. Finally, at about the age of 17 she began to suffer from much abdominal distress; the abdomen increased greatly in size; she complained of severe colic, vomited, became dyspneic, and when she did not have a bowel movement for six weeks, Ege was consulted. Roentgen examination revealed that the entire large bowel, especially the sigmoid, was enormously dilated. It filled the pelvis. In size, the sigmoid resembled an eight months' gravid uterus. The sigmoid and one half of the descending colon was removed; end-to-end anastomosis was performed. The resected part of the bowel was 35 cm. long and 11 cm. in diameter. The patient made a good recovery. She is entirely well and is free from any discomfort. The author emphasizes that while this girl should have been operated on in her early youth, the result is sufficient to warrant performing the operation even later in life with every hope of success.

Kazansky Meditsinsky Jurnal, Kazan

26: 623-764 (July) 1930

- Extinction of Adult Tatar Population. F. G. Muhamedyanov.—p. 649.
- Relation Between Existence of Natural Antibodies and Capacity of Organism to Form of Artificial Ones. S. M. Enaleev.—p. 661.
- Pathogenesis, Clinical Aspect and Therapy of Arthritis of Endocrine Origin. A. G. Teregulov.—p. 668.
- Study of Renal Function in Certain Groups of Workers. T. T. Kostukov.—p. 675.
- Surgical Treatment of Echinococcus Cyst of Abdominal Viscera. T. F. Haritonov.—p. 685.
- *Effect of Lead on Isolated Uterus. M. D. Devlet-Kildeeva and B. A. Raikhstein.—p. 690.
- Partial Ovariectomy in Metrorrhagia. A. Alimbek.—p. 694.
- Case of Teratoma in Sacrococcygeal Region in Fetus. G. M. Sharafutdinov.—p. 698.
- *Alkalinity of Blood in Eczema. B. S. Bikkenin and N. N. Yasnitsky.—p. 703.
- Electrolytic Treatment of Chancroid. T. A. Kugushev.—p. 708.
- Lichen Ruber: Cases. T. A. Kugushev and M. B. Potashnick.—p. 711.
- Living Conditions of Tatar and Bashkir Children in Bash Republic. F. H. Bacyir.—p. 717.
- Incidence of Venereal Diseases Among Population of Tartar Socialist Soviet Republic. B. S. Bikkenin.—p. 720.

Effect of Lead on Isolated Uterus.—Devlet-Kildeeva and Raikhstein noted the frequent occurrence of sterility, abortion, premature labor and various catamenial disturbances among women working in the lead industries. To study the effect of lead on the uterine muscle, they excised, under chloroform anesthesia, a part of the uterine cornu in cats and placed it in Ringer's solution or Locke's solution kept at 38 C. and through which a constant stream of oxygen was being passed. One end of the uterine specimen was fixed to the glass container; the other end was attached to a needle, by means of which the muscular contractions were registered on the blackened paper of a revolving drum. After the normal type of the muscular contractions had been ascertained, lead acetate was gradually added to the solution. The uterine contractions changed with the concentration of the lead acetate. In the first group of experiments, with less than 1:70,000 of lead acetate in the solution, hypotonia of the uterus and weakening and slowing of the muscular contractions were recorded; in the second group, with the increase in the concentration of the lead acetate in the solution up to 1:7,000, the muscular contractions increased in strength and frequency, and the uterus became hypertonic. In both groups the uterine reaction was of short duration, and the uterine contractions became normal in from ten to fifteen minutes. But in the third group, with the increase in the concentration of the lead acetate up to 1:200, the uterus reacted by a complete tetanus, and the muscular contractions could not be made to reappear even after all traces of the lead acetate were washed out. The reaction of the isolated uterus was constant and of the same type in the nulliparous, multiparous and pregnant cats. The introduction of the lead acetate solution into the blood stream of the cats also produced a hypertonic condition of the uterus.

Alkalinity of Blood in Eczema.—Bikkenin and Yasnitsky studied the p_H of the urine and of all the blood in fifty-six patients with eczema (twenty-seven acute cases and twenty-nine chronic cases). At the preliminary examination of the sympathetic nervous system, vagotonia was observed in fifteen patients, sympathicotonia in three patients, mixed form in seventeen patients and normal sympathetic nervous system in twenty-one patients. The determination of the p_H was made by the calorimetric method of Michaelis with a morning specimen of the blood and urine. No deviation from the normal was found in the urine, but the p_H of the blood was found to be from 0.1 to 0.5 above the average, with the maximum increase in the patients with vagotonia.

Finska Läkaresällskapets Handlingar, Helsingfors

72: *607-690 (Aug.) 1930*

*Head's Zones as Aids in Diagnosis. L. Peterson.—p. 607.
*Frequency of Dementia Paralytica in Helsingfors from 1904 to 1928. G. E. A. Rothström.—p. 633.

Head's Zones as Aids in Diagnosis.—Peterson says that the zones of hyperalgesia belong to the easily perceptible symptoms that can be read directly from the patient and may be of valuable assistance in diagnosis, particularly to the beginner.

Frequency of Dementia Paralytica in Helsingfors.—Rothström says that comparison of the number of cases of dementia paralytica in men from 1919 to 1923 and from 1924 to 1928 shows an increase of about 100 per cent. The relation between the number of men and women with dementia paralytica was 3.7 to 1 in the first period and 5.8 to 1 in the second. He did not find evidence for the assumption that the nature and intensity of an antecedent antisyphilitic treatment affects the duration of the latent period or causes a shifting in either positive or negative direction. Thirty-two per cent of the cases now set in after the age of 46.

Hospitalstidende, Copenhagen

73: *761-772 (July 17) 1930*

Studies on Jaundice. T. Geill.—p. 761. C'cn.
*Gastric Ulcer: Two Cases. C. Kirkegaard.—p. 767.

Gastric Ulcer.—Kirkegaard's cases illustrate the difficulty in differential diagnosis between ulcer and cancer when the changes in the wall of the stomach are so extensive as to point to the diagnosis of inoperable cancer on laparotomy. Niche formation, particularly with large niches, is held as an indication for operative treatment. In the first case, with a microscopic diagnosis of chronic gastric ulcer, the niche formation was so marked that the possibility of healing seemed doubtful. In the second instance the roentgen picture and earlier operative results clearly indicated a considerable defect, but the niche wholly disappeared after ulcer diet.

73: *773-784 (July 24) 1930*

*Pathogenesis of Exophthalmic Goiter with Relation to Reid Hunt's Reaction. P. Vogt-Møller.—p. 773.

Pathogenesis of Exophthalmic Goiter with Relation to Reid Hunt's Reaction.—Vogt-Møller's hypothesis is as follows: In persons with "hyperthyroid constitution," increased thyroid hyperfunctioning occurs either on the basis of the generally recognized causes of exophthalmic goiter (to which wrong diet must perhaps be added) or without such cause. Through the sympathetic the increased amount of hormones in the blood leads to a disturbance of the renal functioning which to a greater or less degree hinders the elimination of thyroxin or closely related substances, thus further increasing their accumulation in the organism. Possibly the immediate cause of exophthalmic goiter—the toxins and so forth—may influence the kidneys directly as well as through the thyroid and play a part of the development of the symptom complex of exophthalmic goiter, or this may perhaps also be related to the reduced destruction of thyroxin.

73: *785-812 (July 31) 1930*

*Wassermann Reaction in Experimental Syphilis in Rabbits. O. Thomsen and T. Christiansen.—p. 785.
Intermittent Claudication as Result of Lesion Due to Bullet: Case. C. Ortmann.—p. 800.
*Symptomatic Changes in Blood in Nervous Diseases. G. E. Schrøder and A. Nyfeldt.—p. 802. C'td.

73: *813-824 (Aug. 7) 1930*

*Symptomatic Changes in Blood in Nervous Diseases. G. E. Schrøder and A. Nyfeldt.—p. 813. C'cn.
Pirquet's Tuberculin Reaction as Cause of General Cutaneous Phenomena. A. Kristjansen.—p. 820.

Wassermann Reaction in Experimental Syphilis in Rabbits.—In rabbits with syphilitic infection (testis inoculation) Thomsen and Christiansen found that a marked positive Wassermann reaction developed regularly from five to six weeks after infection and continued unchanged for a longer or shorter time, occasionally six months, apparently independent of the further clinical course of the infection. After a certain time the reaction, often suddenly, ceased to be positive, even in cases with marked secondary pathologic conditions.

Symptomatic Changes in Blood in Nervous Diseases.—Schrøder and Nyfeldt say that while the results of their hematologic and psychiatric-neurologic diagnoses, in an ambulant material, do not show that certain neurologic conditions or psychoses are always connected with changes in the blood picture, further investigations are encouraged.

Upsala Läkareförenings Förhandlingar, Upsala

35: *223-427 (Aug. 30) 1930*

Morphogenetic and Anatomic Studies on Rami Communicantes of Spinal Nerves in Man. M. Wrete.—p. 223.
Polyvalent Vitamin Preparation. H. Rydin.—p. 381.
*Symptomatic Thrombopenic Conditions in Childhood. Y. Åkerrén.—p. 405.
*Postoperative Deaths from Heart Failure. A. Westerborn.—p. 417.

Symptomatic Thrombopenic Conditions in Childhood.—Four cases are presented by Åkerrén. In the first, in an infant with extensive sinus thrombosis, there was marked thrombopenia, which apparently shows the diagnostic significance of thrombocyte examination in this condition. In the second case, an acute aleukemic lymphadenosis, the only pronounced hematologic symptom was the atypical blood picture, almost normal except for a marked thrombopenia. In the last two cases, of rheumatic fever with cardiac disease, with transient thrombopenia and hemorrhagic diathesis, the thrombopenic stage was preceded by an increased thrombocyte count. Thrombocytosis and thrombopenia may thus appear as different phases of the reaction of the organism in infectious diseases.

Postoperative Deaths Due to Heart Failure.—In Westerborn's material of 15,642 operative cases there were 901 postoperative deaths. In his opinion forty-six (about 5 per cent) of the patients died from cardiac insufficiency, and thirty-nine (almost 5 per cent) more from complications resulting from cardiac and vascular weaknesses. Operative interventions should, if possible, be particularly avoided in patients with heart disorders due to chronic myocarditis, fatty degeneration and arteriosclerosis. To disclose such cases, further refinement of the diagnostic procedure is desirable, but application of present methods, especially roentgen examination and the so-called function tests, as well as an exact heart history, will exclude a number of cases in which the patient is unable to withstand the added strain on the heart imposed by operation and the attendant measures. Postoperative deaths due to poor heart function most frequently occur in older persons.

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